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Discover American History

THE MIGHTY MISSISSIPPI AMERICA'S RIVER

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April 2023

Cobblestone
Discover American History

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ABOUT THE COVER

Most of Earth's water is contained in saltwater oceans. Rivers carry only a tiny fraction of Earth's water. But they play an essential role in distributing fresh water to living things throughout the world. The Mississippi River not only is an important source of fresh water for the United States, but it also is a major route for people and goods. Through its valley and connections to other rivers, it truly is a mighty river.

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COOL.
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Marvelous! Magnificent! Monumental! Majestic!
What's the Colonel going on about?
He just came back from flying over the Mississippi. He's trying to describe the experience.

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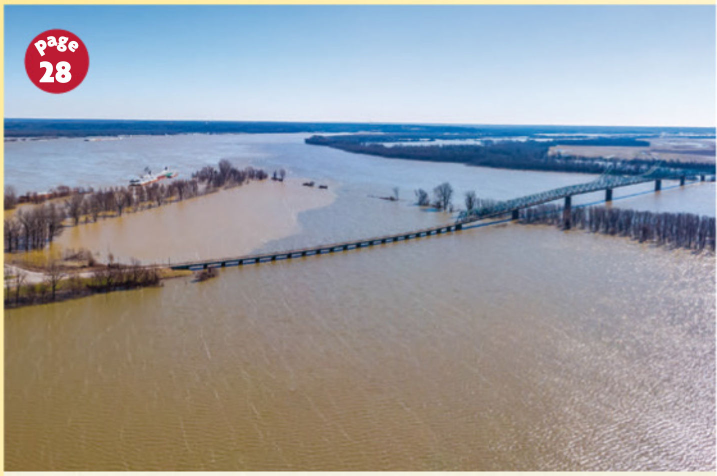
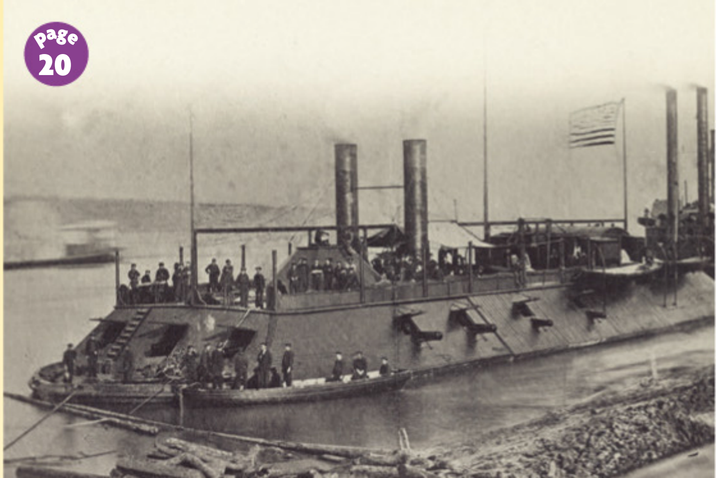




Getting

Old Man River. The Father of Waters. The Mighty Mississippi. These are just a few of the nicknames for one of the greatest rivers in the world. It starts as just a trickle of fresh water coming from Lake Itasca in Minnesota. It flows southward for 2,340 miles, cutting through the U.S. heartland to the Gulf of Mexico.

The Mississippi River has had a major influence on the history and development of the United States. The river and its many tributaries form a river highway. North American Indigenous peoples settled in the river's valley because the Mississippi provided transportation, food, and fertile land. Eventually, Europe's major colonizing empires—the Spanish, the French, and the British—all hoped to control it.

Tributaries are streams that flow into other streams or bodies of water.

Fertile means producing or capable of producing abundant crops.

In 1803, the United States negotiated the Louisiana Purchase with France. That deal put the Mississippi River and the land around it under U.S. control. The river was an important resource as the United States expanded and pushed westward. The invention of steamboats in the early 1800s helped Americans populate towns along the river. Carrying goods and people, steamboats enjoyed a glorious age of travel.

The river's rich farmland attracted settlers to many of the same locations as Indigenous peoples had inhabited. Southern plantation owners cultivated fields of tobacco, sugar cane, and cotton. Midwest immigrant families grew wheat on the prairies. The river made it easy and cheap to load those crops onto boats and float them down the river to New Orleans and the Gulf of Mexico. From there, the cargo was loaded aboard oceangoing ships to be sold in England.

Americans harnessed the river's waterpower to support a variety of industries. Waterfalls fueled mills that ground wheat into flour. Lumber from northern forests were floated down the river to cities and lumber mills to be turned into building materials.

The river remains an important commercial shipping lane today. Barges transport about 175 million tons of freight each year. They carry a wide variety of products—grains, petroleum, coal, rubber, iron and

Started

by Susan Latta

steel, and wood and paper to name just a few.

Recreation and tourism have become major industries, too. The Upper Mississippi River National Wildlife Refuge sees more than 3.5 million visitors each year who come to fish, hunt, and view wildlife.

But altering the river to accommodate a lot of human activity has had a negative impact on the river. Pollution—particularly dumping sewage into the river—developed into a problem in the early 1900s. Populations of native creatures, such as birds, fish, and mussels, declined. And as people settled permanently in the river's floodplain, floods destroyed their homes and communities. A major challenge is finding a healthy balance between keeping people safe while also respecting an inability to completely tame the mighty river. ❆

Sewage is wastewater that flows through a community's sewer system.

A floodplain is a flat area of land that borders a river and that is subject to flooding.

MAPPING IT!

How

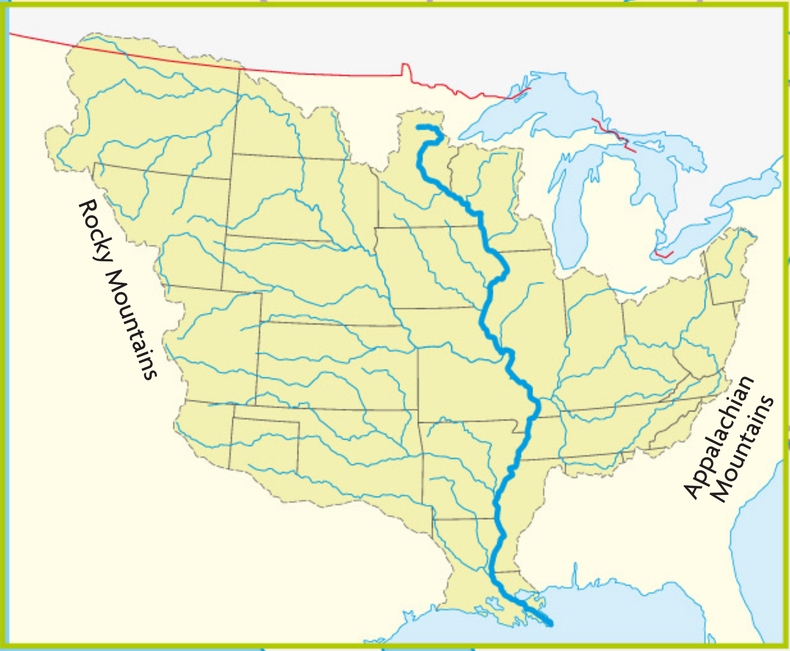
The Mississippi River seems to cut the United States down the middle, but it actually has played an important role in tying the nation together. Before the invention of trains, automobiles, and airplanes, the river and its hundreds of tributaries became a flowing highway for boats that transported people and goods. Major Midwest cities—from Minnesota's Minneapolis to Louisiana's Baton Rouge and from Missouri's St. Louis to Tennessee's Memphis—have attached their growth and future to the river's potential.

The river starts as a 20-foot-wide stream of fresh water coming from Lake Itasca. Its widest expanse—11 miles—also is in Minnesota.

Its widest navigable channel—about 2 miles—is at Lake Pepin, Minnesota.

UNITED STATES

The river's initial flow of about 1.2 miles per hour eventually increases to 3 miles per hour or about as fast as people walk.

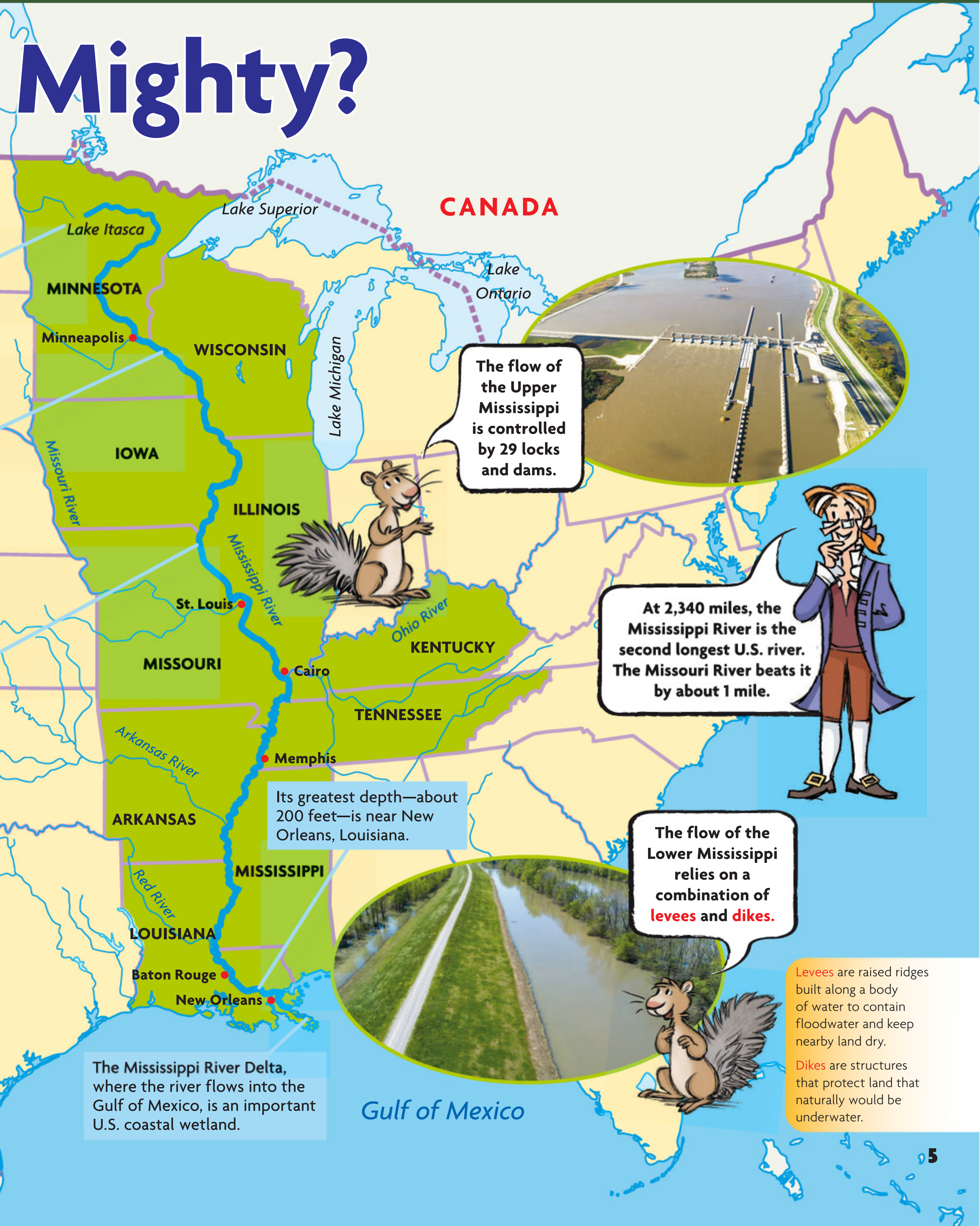

Rocky Mountains
Appalachian Mountains

The Mississippi's watershed—the region draining into it—extends across about 40 percent of the continental United States. It includes 31 states and two Canadian provinces. Water drains into the river from the Rocky Mountains in the west and the Appalachian Mountains in the east.

Geologists believe that the Mississippi River began flowing about 70 million years ago.

MEXICO

Mighty?


CANADA
Lake Superior
Lake Itasca
Lake Ontario
Lake Michigan
MINNESOTA
Minneapolis
WISCONSIN
IOWA
Missouri River
ILLINOIS
Mississippi River
St. Louis
Ohio River
KENTUCKY
MISSOURI
Cairo
TENNESSEE
Arkansas River
Memphis
ARKANSAS
MISSISSIPPI
Red River
LOUISIANA
Baton Rouge
New Orleans
Gulf of Mexico
The flow of the Upper Mississippi is controlled by 29 locks and dams.
At 2,340 miles, the Mississippi River is the second longest U.S. river. The Missouri River beats it by about 1 mile.
The flow of the Lower Mississippi relies on a combination of levees and dikes.

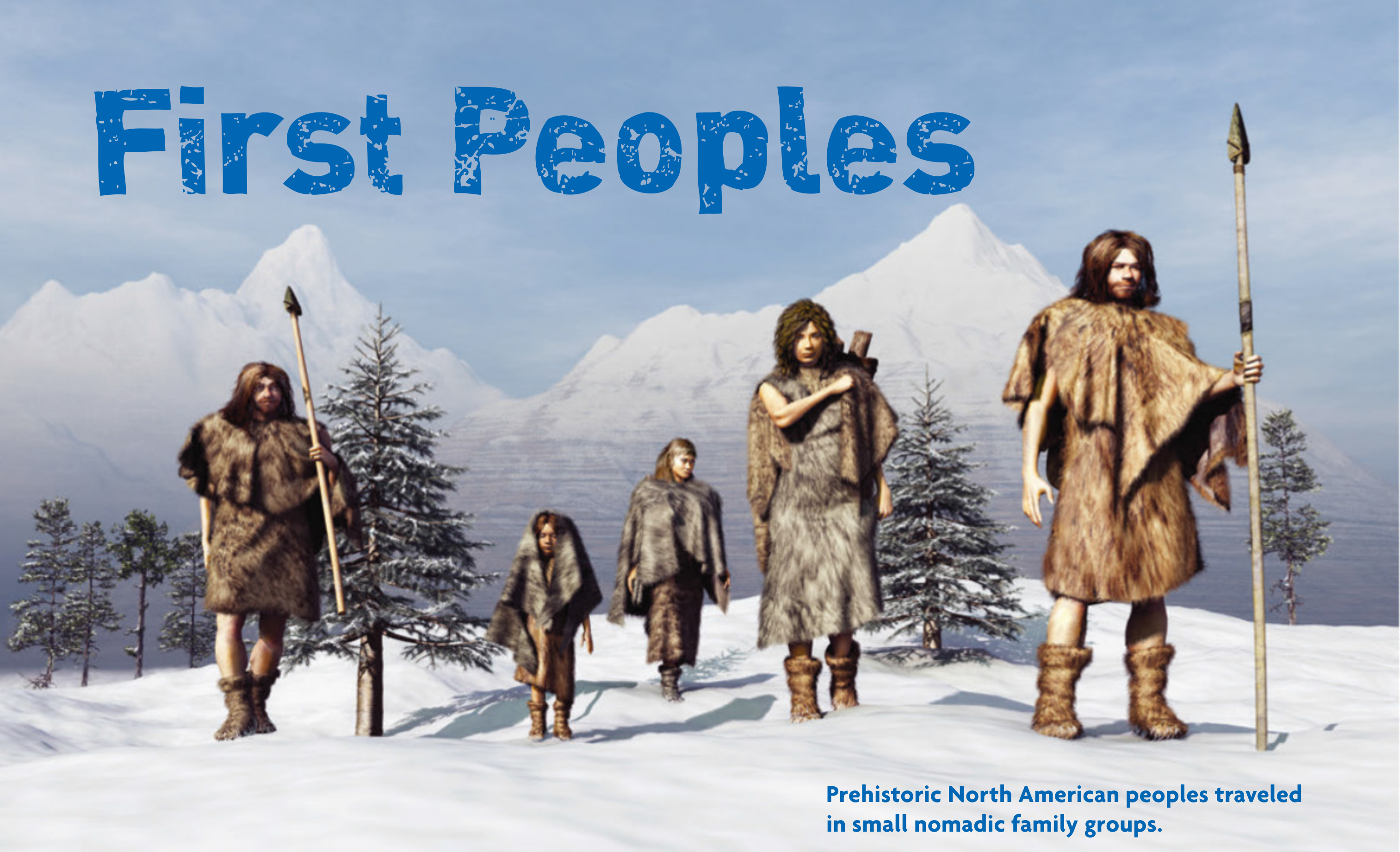
Its greatest depth—about 200 feet—is near New Orleans, Louisiana.

The Mississippi River Delta, where the river flows into the Gulf of Mexico, is an important U.S. coastal wetland.

Levees are raised ridges built along a body of water to contain floodwater and keep nearby land dry.

Dikes are structures that protect land that naturally would be underwater.

First Peoples



Prehistoric North American peoples traveled in small nomadic family groups.

by Andrew Matthews

Thousands of years ago, nomadic hunter-gatherers first explored along the banks of the Mississippi River. They traveled in small family groups. They followed the paths of bison and mastodons—animals that provided food, clothing, and tools. They gathered what was available from the land through which they traveled. Archaeologists have categorized this pre-Columbian period as the Archaic period. To those prehistoric hunter-gatherers, the Mississippi River was a source of fish, mollusks, and fresh water. It also became an extensive waterway for moving around the interior of the continent.

Around 3,000 B.C.E., the Woodland period began. People of that period still hunted, but they didn't travel as far. They learned to plant maize, beans, and squash. They used the river's mud to make simple clay pots to store their food and seeds. They began to bury their dead in earthen mounds. Around 1 C.E., during what has become known as the Middle Woodland period, the Hopewell culture emerged. At the peak of the Hopewell culture (before 500 C.E.), populations grew. People lived in communities of log houses. The Mississippi River provided them with all they needed: rich land to grow plentiful crops and fish, birds, and animals to hunt.

The Hopewell culture developed a vast exchange system. People traveled extensively on the Mississippi and its tributaries. They reached as far away as New York and Georgia and the Gulf of Mexico. They traded food, feathers, furs, and river pearls. Grizzly bear teeth from the Rocky Mountains, copper from Lake Superior, and conch shells from the

Nomadic means moving from place to place with no permanent home.

Pre-Columbian refers to a time before the arrival of Christopher Columbus and European exploration of the Americas.

Maize (corn) is an early cereal grain first domesticated by Indigenous Mexicans.

Atlantic Ocean all found their way back to Hopewell communities.

The Hopewell people extended the use of earthen mounds. They constructed geometric designs of cones, rectangles, and squares. They also built effigy mounds in the shapes of animals such as serpents and turtles. Some of the mounds held sacred temples or the tombs of priests. Archaeologists have found beautiful ornaments and decorated pottery in the mounds.

After many years, the Hopewell culture declined. The people scattered into smaller tribal units. At about 1000 C.E., the Mississippian culture began to appear along the river. Religion (such as worship of the sun) played an important role in their lives. Population growth led to large communities that were organized into chiefdoms. Trade networks flourished, especially in the middle and lower regions of the river. The people also built large earthen mounds.

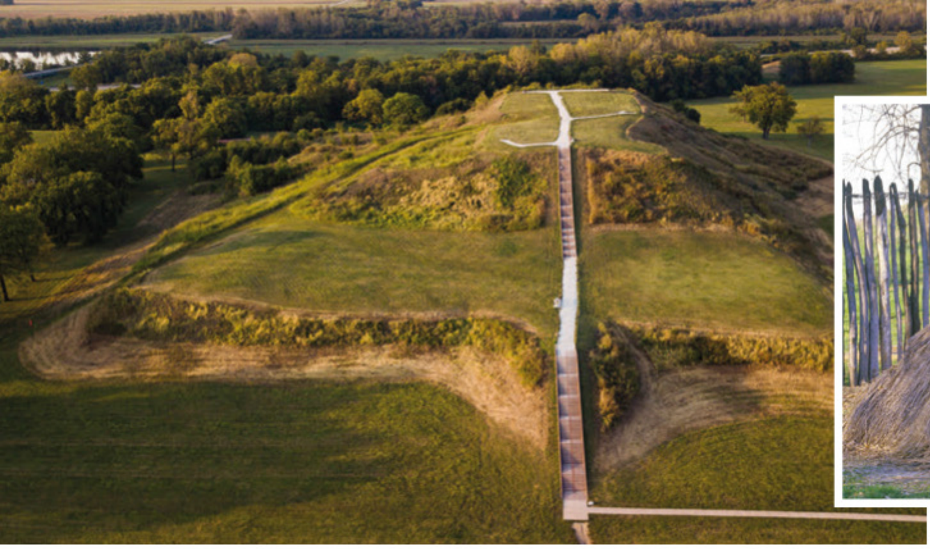
The Mississippian culture's largest settlement was at Cahokia, in Illinois across the river from present-day St. Louis, Missouri. Cahokia was an important social, religious, and political center. More than 20,000 people lived in the ancient city, which extended over six square miles. It is believed the city originally had 120 mounds. About 80 earthen mounds remain visible today. The largest one—Monks Mound—is more than 100 feet tall, 1,000 feet long, and more than 800 feet wide.

Over the course of the 1600s, the Mississippian culture disappeared. Climate change, warfare, and disease all may have played a part in its decline. New groups moved into the land along the Mississippi River. They came into contact with the first European explorers.

The Ojibwe, Winnebago, Sauk, and Fox lived along the Upper Mississippi. The Eastern Dakota also initially lived in the Upper Mississippi valley until they

An effigy is a likeness or an image.

An example of an ancient Hopewell culture burial mound survives at Mound City in Ohio.



ABOVE: Once one of the most important pre-Columbian civilizations north of Mexico, Cahokia is preserved today as a state historic park. ABOVE RIGHT: An example of a reconstructed shelter at Cahokia

I wonder how our culture will be viewed 1,000 years from now?

were driven west. The Sauk, Fox, Potawatomi, and Kickapoo moved south into areas where the Illinois Confederation lived. Members of the confederation included the Peoria, Cahokia, and Kaskaskia. They lived in semi-permanent villages. They fought, traded, and formed alliances with one another.

The Choctaw, Chickasaw, Alabama, Natchez, and other peoples inhabited the Lower Mississippi. They lived in large, settled villages with public buildings and cultivated fields. River trade was important. The Natchez were distinct in that they lived on family farms along the river. They had an elaborate system of sun worship and social classes based on noble families.

The Indigenous peoples along the Lower Mississippi encountered the first European explorers. In 1541, Spaniard Hernando de Soto reached the river. Along the way, he kidnapped and enslaved people with whom he came in contact. He also engaged in warfare and burned Indigenous villages.

In the early 1600s, French fur traders in present-day Canada learned much from local native guides. French explorers, aided by friendly Indigenous groups, were the first to travel the length of the river, which they claimed for France. But European powers often used Indigenous peoples for their own purposes of trade and war. European contact also introduced diseases that killed more than 90 percent of North America's original inhabitants.

In 1803, France sold its Louisiana claims to the United States. With that purchase, the United States controlled both the river and the valuable land along it. The U.S. government soon began the process of removing Indigenous peoples from their traditional lands to make room for Euro-American settlers.

People who once had lived and roamed freely in the Mississippi River valley were pushed onto land in present-day Kansas and Oklahoma. Before the end of the 1800s, the U.S. government had forced nearly all Indigenous peoples to live on reservations in the West.

Today, many Indigenous peoples are working to reclaim their history. They want access to their traditional lands. In the meantime, their ties to the Mississippi River can be found in the earthen mounds and the names of rivers, states, and cities that come from their ancestors who once lived along the river. ☸

Based on an article written by Brandon Miller.

France Stakes a Claim

by Marcia Amidon Lusted and Craig E. Blohm

Father Jacques Marquette, a French Jesuit missionary, arrived in Quebec, New France (present-day Canada), in 1666. He helped found several missions in the Great Lakes region. He learned to speak many of the local tongues, including those of the Huron, Ottawa, and Illinois. Members of the Illinois told him about a "Great River." He wondered if it flowed all the way to the Pacific Ocean. He asked permission from his superiors to explore for the river.

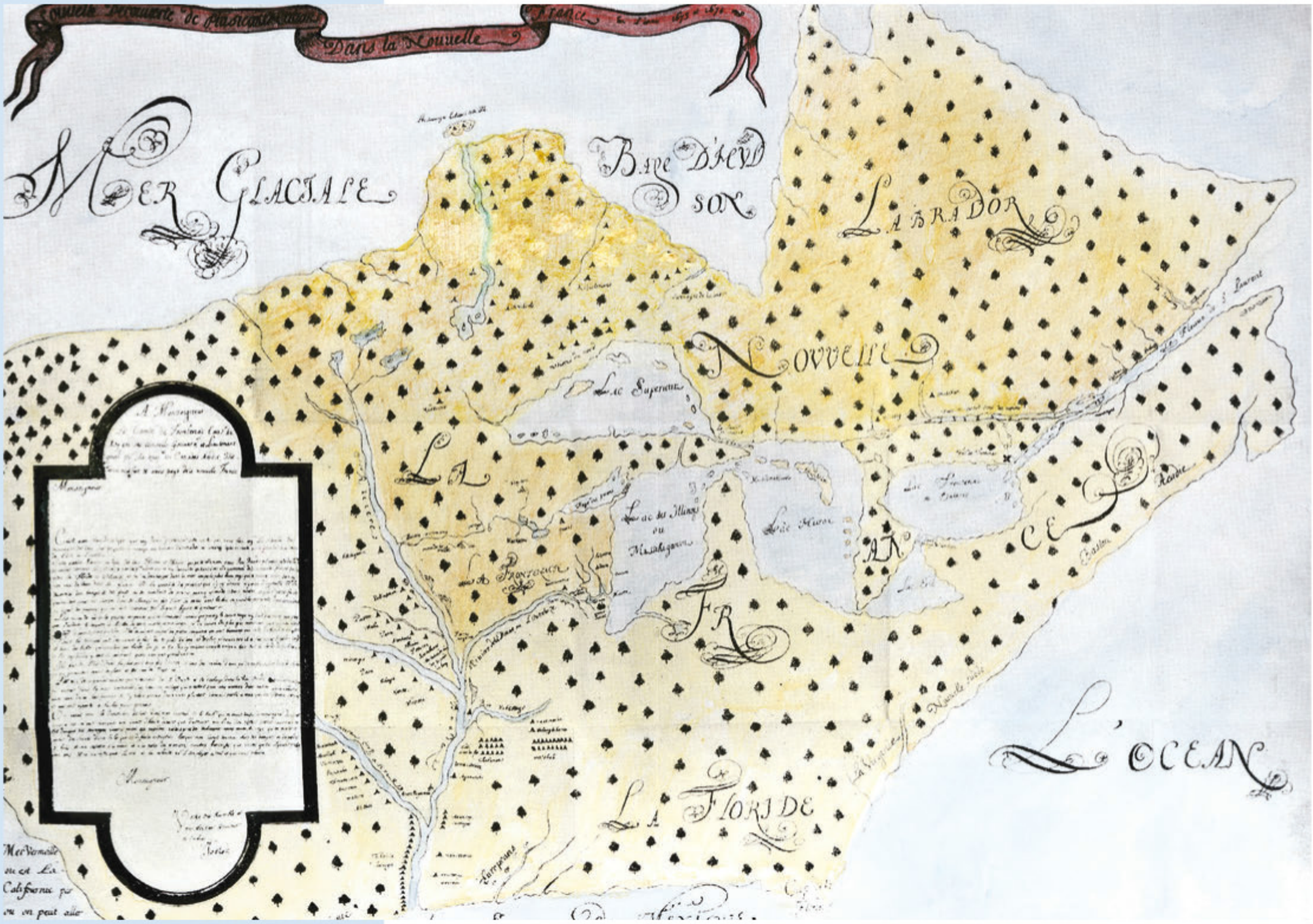
Meanwhile, Louis Jolliet (also spelled "Joliet") was born in Quebec

A Jesuit is a member of the Society of Jesus, a Roman Catholic religious order.

A missionary is a person sent on a religious mission, often to promote Christianity in a foreign country.

ALONG THESE WATERWAYS AND TRAILS HISTORY HAS PASSED. THE CHICAGO PORTAGE HAS SERVED AS THE CONNECTING LINK BETWEEN THE GREAT LAKES AND THE THE MISSISSIPPI RIVER SYSTEM.
CHICAGO PORTAGE
THE WATERWAY WEST
IN 1673, LED BY AMERICAN INDIANS, EXPLORERS MARQUETTE AND JOLLIET BECAME THE FIRST EUROPEANS TO CROSS THE PORTAGE. THIS ROUTE ENCOURAGED THE DEVELOPMENT OF THE I & M CANAL AND THE GROWTH OF CHICAGO.

Father Jacques Marquette and Louis Jolliet were the first French explorers to attempt to find the Mississippi River in 1673.



On a map of the expedition's discoveries, New France's territory is a little out of proportion to an actual map of the United States.

in 1645. Educated at a Jesuit school there, he decided not to become a priest and instead went into the fur trade business. In 1672, the newly appointed French governor, Louis de Buade, Comte de Frontenac, commissioned Jolliet to join Marquette's expedition. The two men made a good pair. Marquette kept a diary and drew maps of the country through which the group passed. Jolliet's fur trade experience made him familiar with Indigenous peoples' cultures and languages.

The First Attempt

Along with five men from French-Indigenous families, Marquette and Jolliet set out in canoes on May 18, 1673. They headed for the northern shore of Lake Michigan and then to present-day Green Bay, Wisconsin. They made their way up the Fox River almost to its source. They portaged for two miles through marshes and oak forests to the Wisconsin River. That river eventually led them to the Mississippi River near what is now Prairie du Chien, Wisconsin. After traveling for just one month, they found the big river they sought on June 17.

Marquette and Jolliet quickly realized that the Mississippi River did not lead to the west and the Pacific Ocean. They decided to continue down it anyway. They reached the mouth of the Arkansas

Portaged means carried a lightweight boat and its cargo over land between navigable waters.

River, just a little more than 400 miles from the Gulf of Mexico. They became the first Europeans to explore and map much of the Mississippi River and its shores.

A Successful Trip

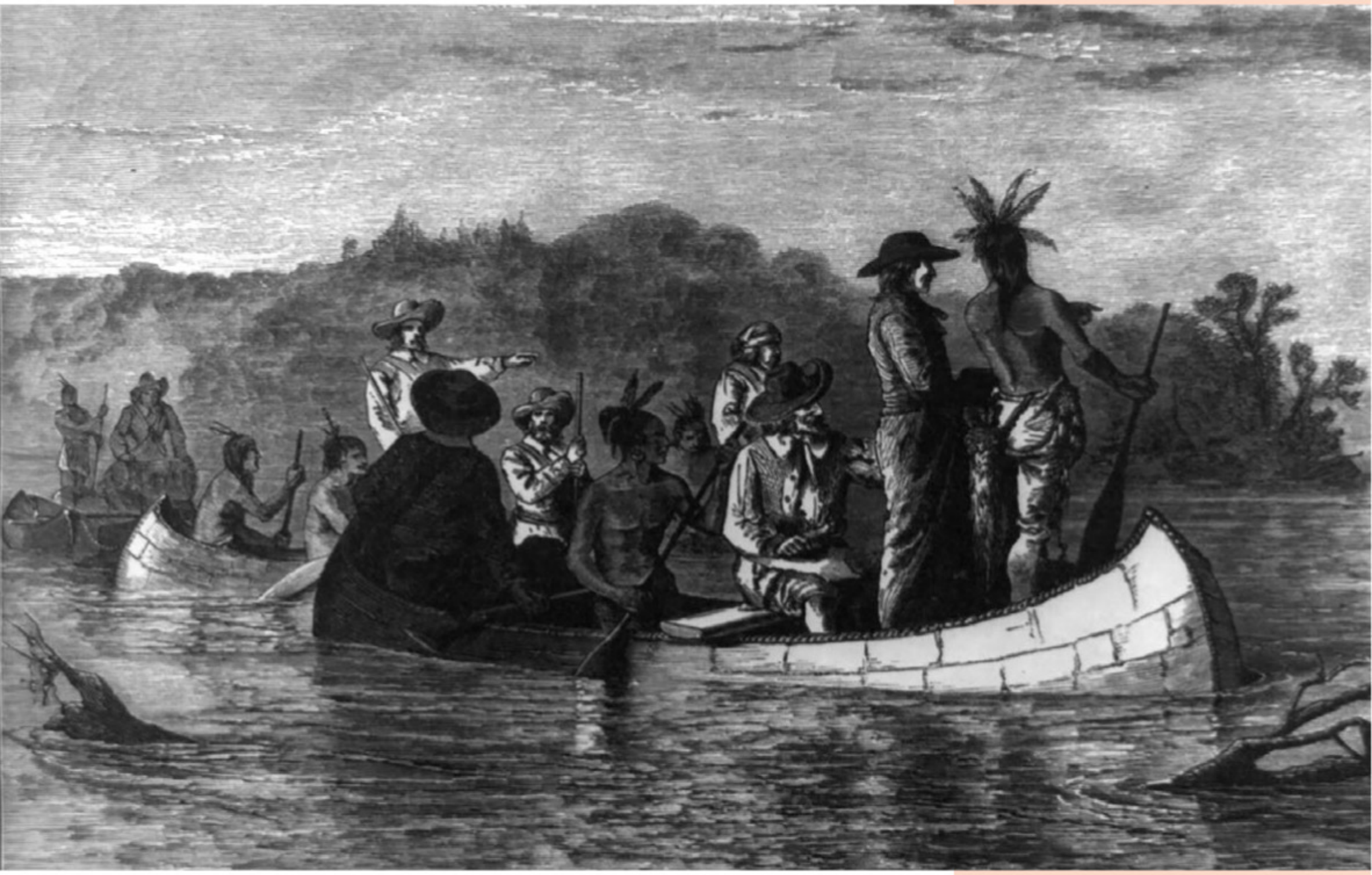
The expedition was warned about hostile Indigenous groups farther south. And some of the local people the French explorers encountered carried European trade goods. The Frenchmen guessed that the goods came from the Spanish. They decided to turn back. As Marquette wrote, "[W]e exposed ourselves to the risk of losing the results of this voyage, of which we could give no information if we proceeded to fling ourselves into the hands of the Spaniards who, without doubt, would at least have detained us as captives."

Following instructions from friendly local people, Marquette and Jolliet used a shorter route to return to the Great Lakes. The expedition paddled nearly 2,500 miles in their exploration of the Mississippi River. They returned with firsthand information and maps of the area. Jolliet shared their findings with the French governor.

Another Curious Explorer

Marquette and Jolliet were not the only adventurous Frenchmen in New France. René-Robert Cavelier, Sieur de La Salle, had heard stories of a great river, too. Like Marquette,

Marquette and Jolliet were aided and guided during their journey by friendly Indigenous people.



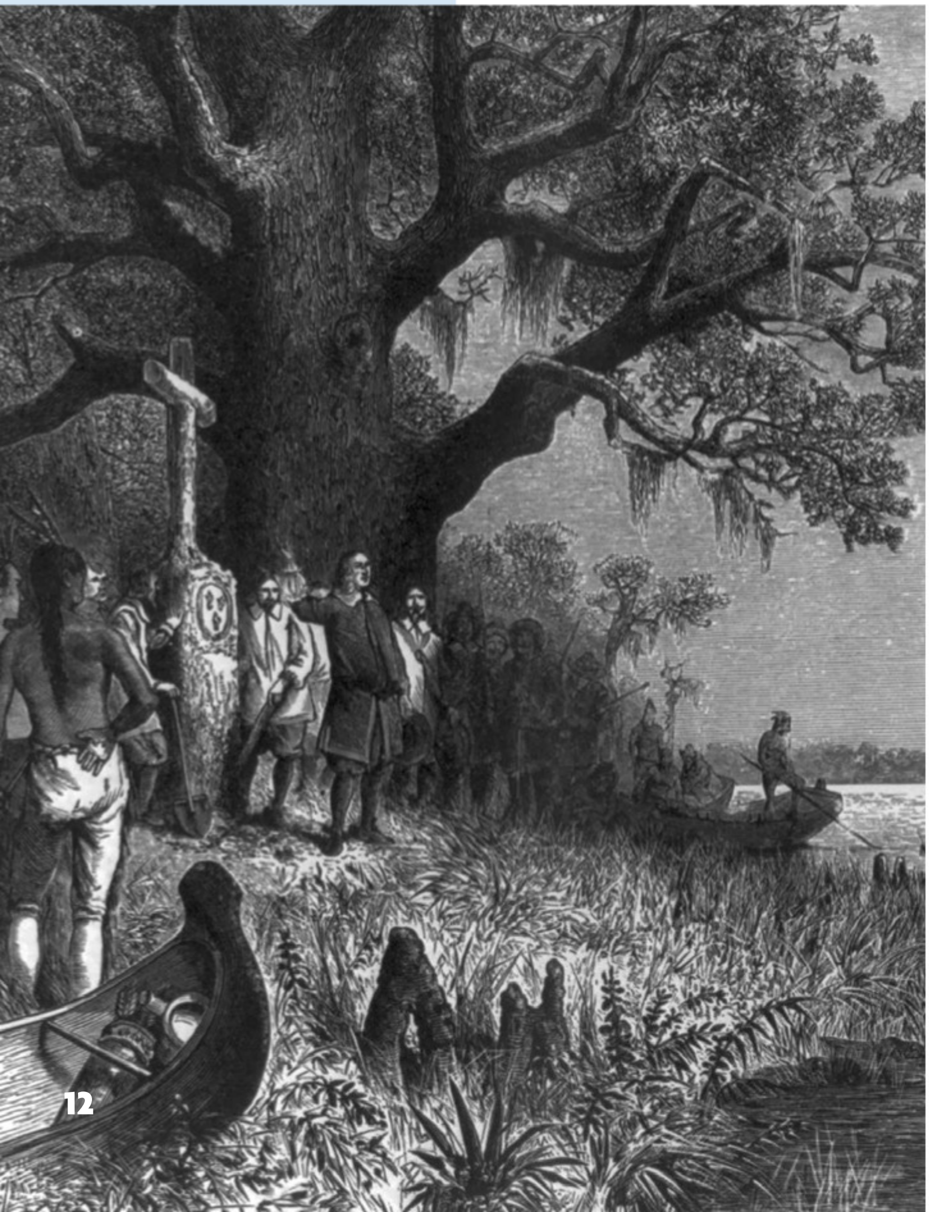
Harrowing means quite scary or distressing.

Mutinied means refused to obey the orders of a person in authority.

La Salle had arrived in New France in 1666. At first, he seemed content to be a thriving landholder and fur trader in Montreal. He ventured out among the Indigenous peoples living in the area. He traded furs with them and learned their languages. Their stories of great rivers to the south intrigued him. La Salle dreamed of finding and exploring those riverways to their ends.

La Salle set out on his first expedition on July 6, 1669. Little is known about the trip. After traveling through the North American wilderness and trading furs, La Salle returned to Montreal in 1673. He became friends and business partners with Governor Frontenac. They planned a new expedition to build a fur trade empire and to claim more territory for France.

A 28-year-old Italian soldier named Henri de Tonti joined La Salle on his second expedition. Tonti had lost his right hand in battle in Europe and wore an iron claw in its place. As La Salle's trusted lieutenant, Tonti's first assignment was to supervise the building of a sailing ship for the expedition. Named the *Griffon,* the vessel was to carry La Salle's expedition across the Great Lakes.



René-Robert Cavelier, Sieur de La Salle, claimed the entire Mississippi River and the land along it for the French Empire in 1682.

To the Mississippi!

In August 1679, La Salle, Tonti, and their men set out. Sailing on the *Griffon* across Lake Erie and Lake Huron, they eventually reached the southern end of Lake Michigan. Switching to canoes, they continued traveling on the Kankakee River and the Illinois River. They reached an Indigenous village near present-day Peoria, Illinois. There, La Salle built a fort. He named it Crèvecoeur (meaning "heartbreak").

In March 1680, La Salle headed back to New France to resupply. He left Tonti in charge of Fort Crèvecoeur. He instructed Tonti to begin construction of a second fort at Starved Rock. When La Salle returned later that year, he found Crèvecoeur destroyed. There were no signs of Tonti or the other men.

When La Salle and Tonti eventually reunited in 1681, Tonti shared a harrowing tale. La Salle's men had mutinied and destroyed the fort. Tonti and four other men had been captured and nearly killed by a band of Iroquois. They escaped up the Illinois River to Lake Michigan, where they were taken in by friendly Potawatomi people near Green Bay.

At Last

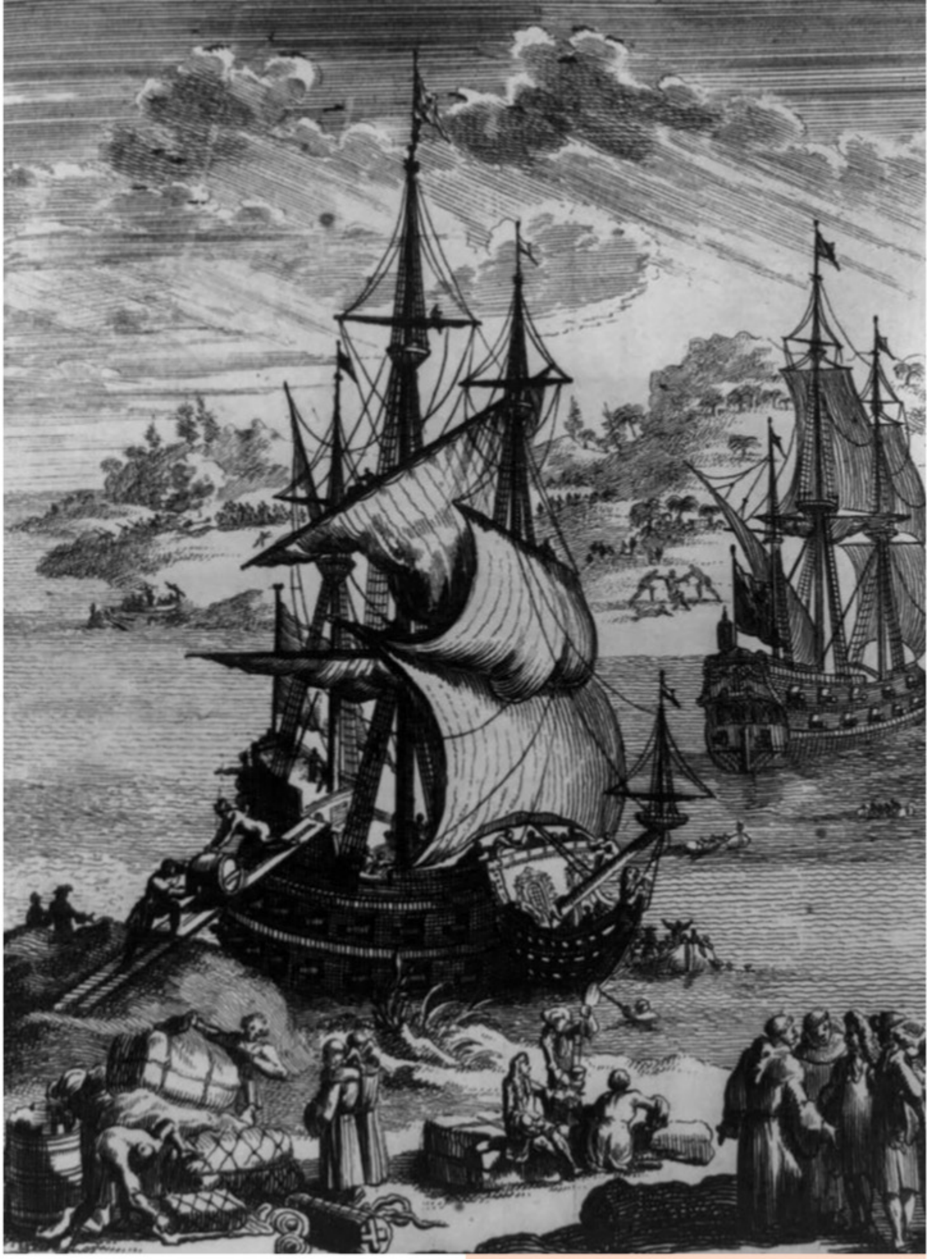
La Salle, Tonti, and their expedition finally entered the Mississippi River in February 1682. The wide river, with its swift current, proved easier to navigate than the smaller rivers that the group had traveled to reach it. Arriving near present-day Memphis, Tennessee, La Salle built another fort. He named it Prudhomme, after one of his men. Pushing on along the river, La Salle's talent for making friends continued to keep the journey safe.

On April 6, 1682, the explorers discovered that the Mississippi River split into three branches. They split up and found that all three routes emptied into the present-day Gulf of Mexico. On April 9, 1682, La Salle raised a wooden cross and declared, "In the name of the . . . King of France . . . I . . . now take possession of this country of Louisiana." With those words, La Salle claimed the Mississippi River valley and nearly half the North American continent for King Louis XIV and France.

One More Try

La Salle led another effort to reach the Mississippi River in 1684. He hoped to find its mouth by sailing from France to the Gulf of Mexico. Several hundred French colonists traveled with him. But La Salle overshot by hundreds of miles to the west. Two ships were lost on the journey. One ship returned to France as soon as its cargo was unloaded. A fourth ship later ran aground and was lost. The surviving colonists were stranded in the wilderness on the Spanish-claimed coast of Texas. Their remote settlement became known as Fort St. Louis.

La Salle went on foot to look for the river, but he was unsuccessful. On March 19, 1687, a frustrated member of the colony killed La Salle. La Salle's dream of building a chain of French forts along the river ended with his death. One hundred and sixteen years later, France's claim to the river transferred to the United States in the Louisiana Purchase. ☸



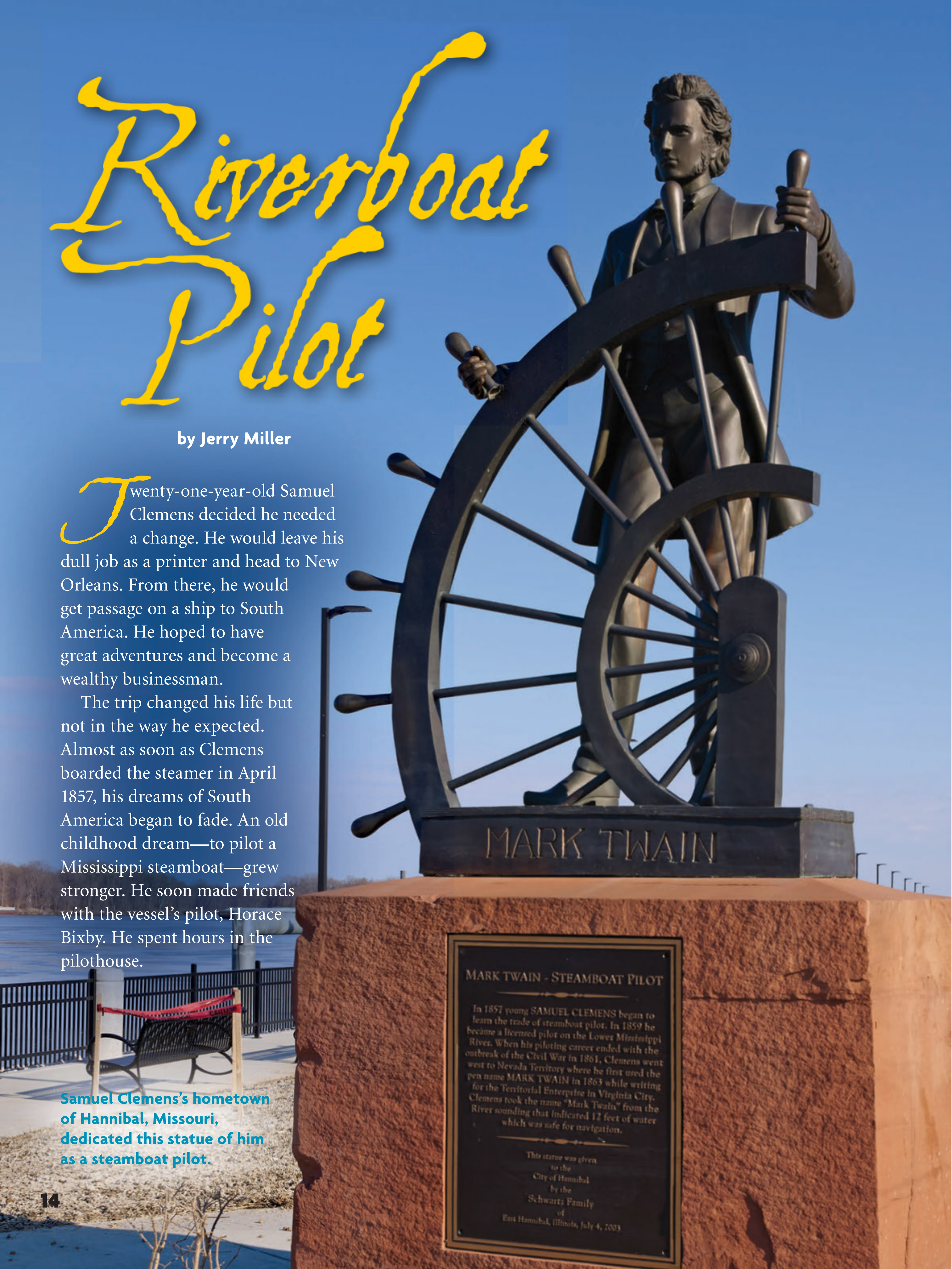
After landing on the Texas coast instead of at the mouth of the Mississippi River, La Salle's French colonists did not survive for more than a few years.

Riverboat Pilot

by Jerry Miller

Twenty-one-year-old Samuel Clemens decided he needed a change. He would leave his dull job as a printer and head to New Orleans. From there, he would get passage on a ship to South America. He hoped to have great adventures and become a wealthy businessman.

The trip changed his life but not in the way he expected. Almost as soon as Clemens boarded the steamer in April 1857, his dreams of South America began to fade. An old childhood dream—to pilot a Mississippi steamboat—grew stronger. He soon made friends with the vessel's pilot, Horace Bixby. He spent hours in the pilothouse.

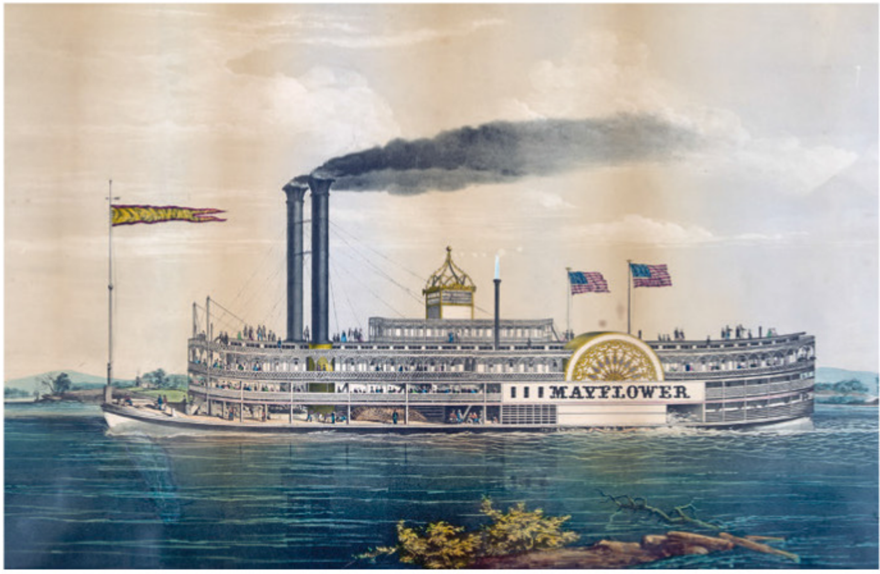

MARK TWAIN
MARK TWAIN - STEAMBOAT PILOT
In 1857 young SAMUEL CLEMENS began to learn the trade of steamboat pilot. In 1859 he became a licensed pilot on the Lower Mississippi River. When his piloting career ended with the outbreak of the Civil War in 1861, Clemens went west to Nevada Territory where he first used the pen name MARK TWAIN in 1863 while writing for the Territorial Enterprise in Virginia City. Clemens took the name "Mark Twain" from the River sounding that indicated 12 feet of water which was safe for navigation.
This statue was given
to the
City of Hannibal
by the
Schwartz Family
of
East Hannibal, Illinois, July 4, 2003

Samuel Clemens's hometown of Hannibal, Missouri, dedicated this statue of him as a steamboat pilot.

Years later, Clemens wrote, “When I was a boy, there was but one permanent ambition among my comrades in our village on the west bank of the Mississippi River. That was, to be a steamboatman.” The king among steamboat men was the pilot, the man who “drove” the boat.

It was no wonder that boys dreamed of piloting a Mississippi riverboat. With the exception of ocean steamers, they were the largest, most powerful vehicles of their time. Large riverboats were powered by eight or more huge boilers. They were longer than a football field and weighed more than 350 tons. Many riverboats carried about 1,000 tons of freight and more than 200 passengers and crew members. And pilots earned excellent pay: A good pilot earned as much as the nation’s vice president.

When Clemens reached New Orleans, he looked for a ship bound for South America. He may have been relieved when he couldn’t find one. He went in search of Bixby and begged to be accepted as an apprentice, or cub pilot. Bixby agreed. Their terms: Bixby would spend two years teaching Clemens about the Mississippi River between New Orleans, Louisiana, and St. Louis, Missouri. In return, Clemens would turn over his entire earnings of $500 during that time to Bixby. Clemens would receive free food and lodging aboard the ship.



In the mid-1800s, steamboats ruled the waterways. They carried huge loads of cargo, and their elegance offered luxurious rides for passengers.

It took Clemens the full two years to earn his pilot’s license. Becoming familiar with 1,200 miles of ever-changing water was a greater task than he realized. He had to remember the location of every crossing, plantation site, submerged sandbar, sunken boat, snag, rock, and bend in the river. He not only had to find, follow, or avoid those places and obstacles in daytime—but also at night and in heavy fog! Riverboats had no headlights.

Clemens also had to learn how to “read” the river. That is, he had to be able to tell what lurked under the water by studying its surface. The river changed constantly. It rose and fell. It altered its course. It carved new channels with new hazards. Sandbars grew. Banks caved in, washing away trees that became dangerous underwater snags. A pilot had to burn every new

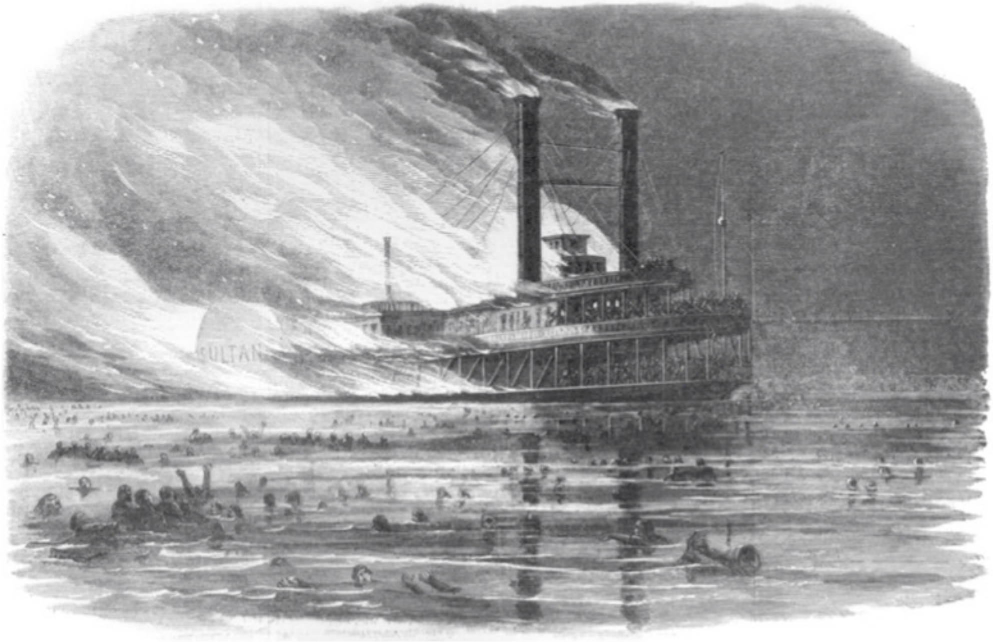
Boilers are vessels in which water is heated to produce power or heat.

A sandbar is a submerged or partially exposed ridge of built-up sand.

A snag is a tree branch, stump, or log that is stuck in a riverbed and interferes with the bottom of boats as they pass through the water.

danger into his memory to keep his passengers and vessel safe.

The dangers of steamboating gave pilots nightmares. Accidents were common. Riverboats could be sunk by submerged objects. They could explode, burn, or collide with other riverboats. Clemens's younger brother, Henry, also was a steamboat man. He died in 1858 when four of his ship's eight boilers exploded. More than 250 people died in the blast and the fire that followed.



Riverboat pilots faced the often-deadly dangers of fires and boiler explosions.

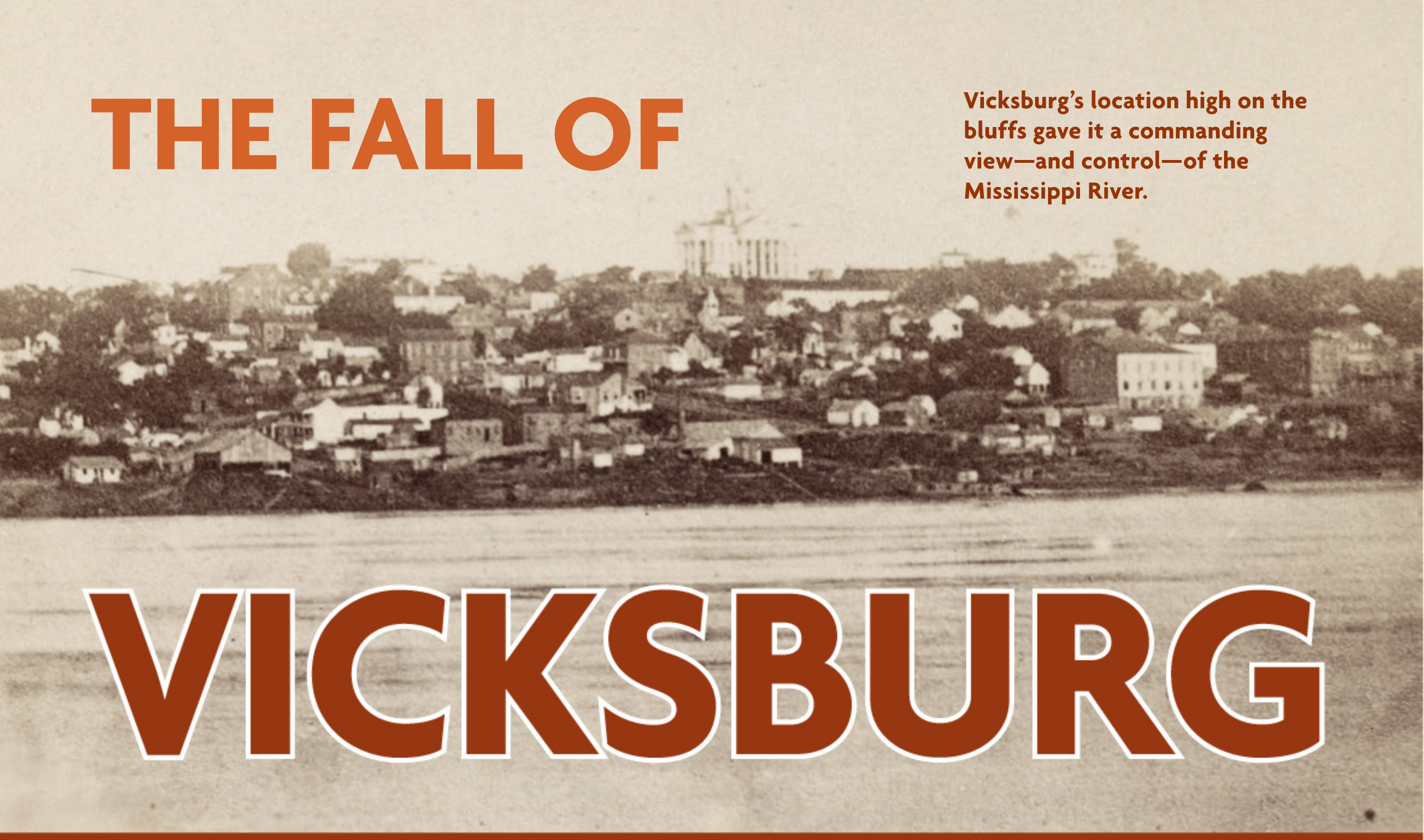
Despite its dangers, Clemens loved his job. He loved the river, the boats, and the people. He had one of the best safety records and hoped to be a pilot for the rest of his life. But his piloting days came to an end only two years after he received his license. When the Civil War (1861–1865) began, the Union navy closed the river to commercial travel. The river became a war zone that both sides hoped to control. After serving as a Confederate volunteer for a couple of weeks, Clemens quit the war and headed west to Nevada.

Clemens never again worked on or lived beside the Mississippi. But he wrote about it. He set many stories and articles there, including three popular books: *The Adventures of Tom Sawyer, Life on the Mississippi*, and *Adventures of Huckleberry Finn*. The people he met on the river became characters in his books. Perhaps most important, his exceptional powers of memory and close observation—which he developed as a riverboat pilot—helped seal his reputation as one of America's most famous literary voices, Mark Twain. ☸

DID YOU KNOW?

Samuel Clemens used "Mark Twain" as his pen name. In boating terms, those words mean "mark 2" or "measure 2." The phrase refers to 2 fathoms of depth—or 12 feet (1 fathom is equal to 6 feet). A riverboat pilot needed to know the depth of a river to navigate it safely. He relied on a leadsman to measure the river's depth. The leadsman did this by standing at the bow (front) of the boat and dropping into the water a weighted rope that was marked in 6-foot intervals. When the rope sank to the second (2-fathom) mark, the leadsman shouted "mark twain" to the pilot. That told the pilot that the river was a safe depth for travel.

THE FALL OF VICKSBURG



Vicksburg's location high on the bluffs gave it a commanding view—and control—of the Mississippi River.

by Craig E. Blohm

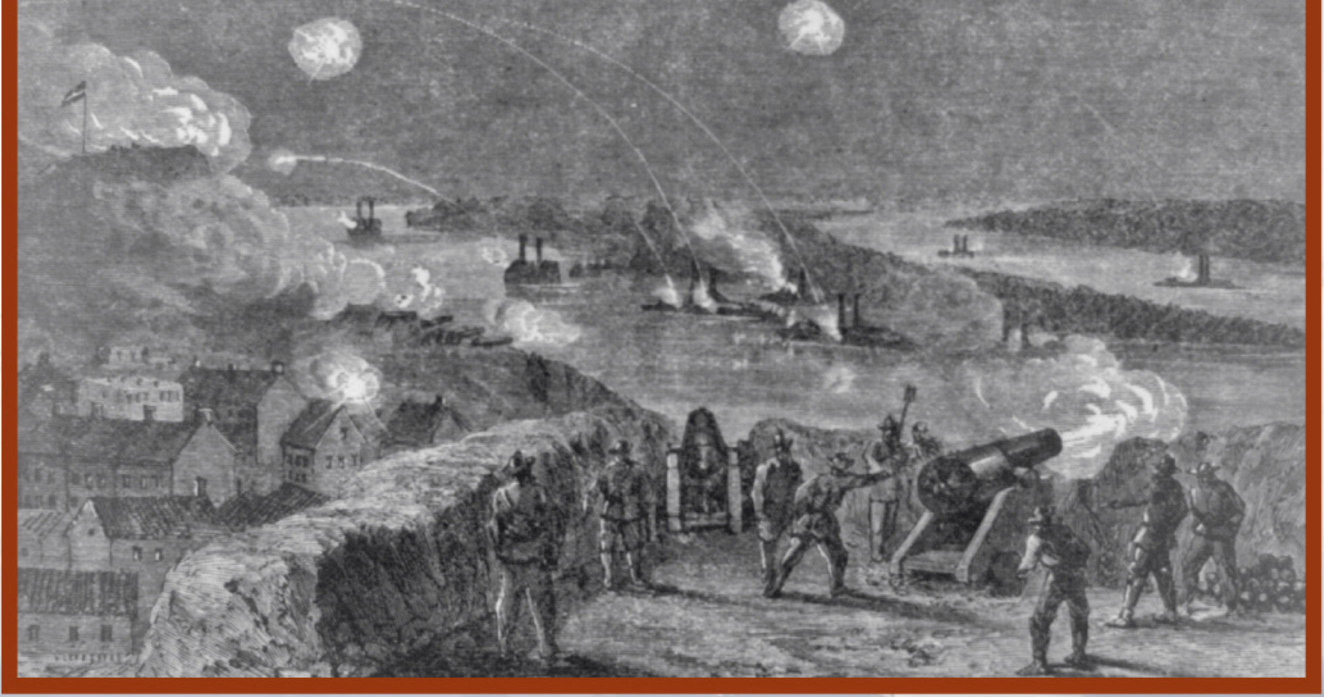
Union major general Ulysses S. Grant had been given a free hand to pick his own battles in the Civil War (1861–1865). Far from the big battles taking place in the east, Grant commanded 60,000 men in the western Army of the Tennessee. He chose Vicksburg, Mississippi, as his most strategic opportunity.

Grant knew that the outcome at Vicksburg would determine the fate of the Confederacy. Vicksburg was the last important Confederate stronghold on the Mississippi River. If the Union army could take it, the North would then control the country's major north–south waterway. It also would split the Confederate states of Arkansas, Louisiana, and Texas from the rest of the Southern states.

In March 1863, Grant began an offensive. He moved his men down the west side of the Mississippi River in Louisiana. The army would then cross the river south of Vicksburg and march north to the weaker southern side of the city. But first Grant wanted to distract the Confederates, so he ordered other troop movements to confuse them.

Grant instructed Union major general William T. Sherman to keep up the pressure north of Vicksburg. Sherman's presence kept the Confederates focused on him and not on Grant's movements across the river. In mid-April, Grant also ordered Union colonel Benjamin H. Grierson to launch a cavalry raid through Mississippi. To confuse the Confederates, Grierson split his forces. He sent 700 men north while the main body of 1,000 men continued south. He also ordered Union soldiers dressed in Confederate gray to telegraph a false message to Vicksburg regarding his whereabouts. The ploy

President Abraham Lincoln eventually put Grant in charge of all the Union armies.



Confederate artillery bombarded Union naval transports as they steamed past Vicksburg.

worked. Confederate commanders ordered a cavalry unit to leave western Mississippi and go after Grierson.

Meanwhile, on the night of April 16–17, acting Rear Admiral David Dixon Porter headed south on the Mississippi River with his 11-vessel Union naval fleet. Porter lost only one ship as he sailed past Vicksburg's intense cannon bombardment. His role was to carry supplies to Grant's army south of the city. Porter's vessels also were used to transport the Union soldiers across the river to the opposite shore. By April 30, Porter's fleet had ferried Grant's troops across the Mississippi River at Bruinsburg, Mississippi. Union forces were on the same side of the river as Vicksburg, just below the city.

The risk of splitting up his army paid off for Grant. Moving inland, Union forces engaged in a number of battles with Confederate forces in Mississippi. Grant's men won each battle and finally arrived outside Vicksburg on May 18.

But the city was well fortified. Two attempts at storming its defenses failed. Grant was forced to settle in for a siege.

The Confederates were ready to defend their city high upon the bluffs. They had constructed a line of earthworks nine miles long around it. Union forces began digging deep trenches, called saps, of their own. The saps zigzagged toward the Confederate line. In some places, they came within 10 or 20 yards of the enemy's fortifications.

Grant then began an artillery assault on the Confederate line. At the same time, Union gunboats on the Mississippi River added their mortar fire. Grant's troops also were digging a tunnel toward a Confederate fortification guarding the road that led to Vicksburg from the east. By mid-June, they had reached nearly 50 feet under the fort. Union soldiers packed 2,200 pounds of gunpowder at the end of the tunnel. On June 25, the explosives were set off. "So terrible a spectacle is seldom witnessed," wrote newspaper correspondent James Fitzpatrick. "[E]verything connected with the fort—rose hundreds of feet in the air." Despite the tremendous blast, Union troops could not capture the city.

As the weeks passed, people in Vicksburg began to suffer. Food became scarce. Ammunition ran low. Confederate lieutenant general John C. Pemberton finally sent a note to Grant asking for terms to end the fighting. On July 4, 1863, Vicksburg surrendered after a 47-day siege.

When President Abraham Lincoln heard of Vicksburg's surrender, he understood its importance. Referring to the Mississippi River, he said, "the father of waters again goes unvexed to the sea." Control of the river determined the war's outcome. The river was an important route for trade and travel—and for army movements. The Civil War continued for another 21 months, but the major fighting shifted to the east after Vicksburg. Combined with General Robert E. Lee's defeat at the Battle of Gettysburg also in July 1863, Vicksburg's fall was the beginning of the end for the Confederacy in the Civil War. ☸

A siege is a military operation in which enemy forces surround a position and cut off supplies to force a surrender.

Bluffs are steep cliffs.

Earthworks are mounds of earth erected as protective fortifications.

Artillery are large-caliber weapons, such as cannon.

A mortar is a muzzle-loaded, large-caliber weapon that shoots high and short.

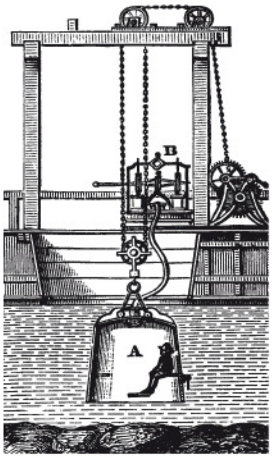
Union troops (OPPOSITE BOTTOM) and Confederate troops (BELOW) built elaborate systems of saps during the long siege at Vicksburg.

Engineer Extraordinaire

by Elizabeth Howard

James B. Eads

The Mississippi River was littered with sunken steamboats that had hit snags or had gone down in flames. Someone could make a fortune retrieving cargoes that were sitting on the bottom of the river. Someone with imagination and the right kind of boat. In 1842, James B. Eads proved that he had both the imagination and the know-how to design such a boat.



A diving bell allowed a person to work underwater.

Eads was born in 1820 in Indiana. His family moved around a lot as his father tried to earn a living. When the Eads family moved to St. Louis, Missouri, in 1833, James stopped attending school and found jobs to help support his family. In his free time, he read books about civil engineering and machinery. By the time he was 19, he had a job as a cargo clerk on the *Knickerbocker,* a river steamboat.

An accident on the steamboat got Eads thinking about salvage. He started with a flat-decked barge holding a derrick. A 40-gallon wooden barrel served as a makeshift diving bell. Lowered into the Mississippi River by the derrick, the diving bell allowed Eads to walk on the river's bottom. He spent hundreds of hours exploring. He observed that where the river ran fast, it scoured and deepened its channel. Where the river slowed, it deposited sediment that collected into sandbars.

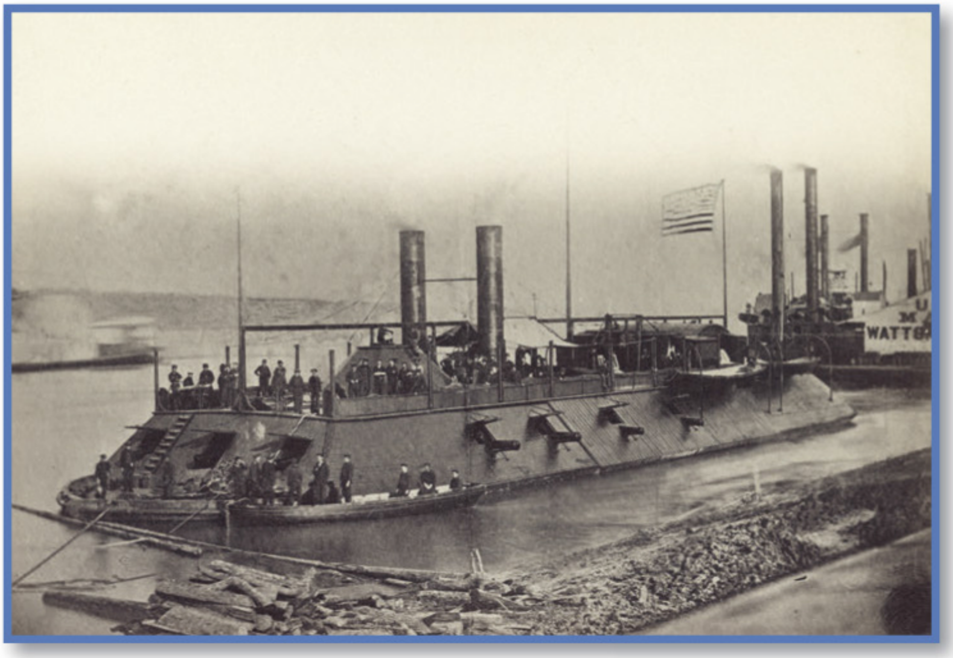
By 1856, Eads was the respected captain of a fleet of salvage boats on

A derrick is a crane with a movable arm for lifting heavy weights.

A diving bell is a device used to allow divers to safely explore underwater.

Scoured means made a channel by allowing water to flow forcefully over something and carry away sediment.

Sediment is made of fragments of material that settle in water.



Eads perfected the use of gunboats, such as the *Cairo,* on the Mississippi during the Civil War.

the river. And his firsthand knowledge of the river became invaluable to him as he created monumental works of engineering that forever altered the Mississippi.

But the Civil War (1861–1865) initially put such projects on hold. The federal government asked Eads to build river gunboats for the Union. Eads built more than 30 ironclads, constantly incorporating improvements. The ironclads helped the Union win important victories on the Mississippi River and along the Gulf of Mexico.

After the war, Eads turned his attention and energies to building a bridge across the Mississippi at St. Louis. The river was a major north-south trade route for the interior of the United States. By the mid-1800s, river traffic had made St. Louis the gateway to the West. But the river was a barrier to the east-west railroads that hoped to connect the nation's two coasts. If St. Louis wanted to keep its wealth and its link to markets, it needed a bridge to allow trains to get across the river.

Eads had never built a bridge, but he didn't hesitate to sketch his ideas. In 1867, his design was accepted. It was a boldly innovative idea. It was the first bridge to make extensive use of steel. It also incorporated a cantilevered, or arched, design—the longest of its kind at the time.

Eads also was the first U.S. engineer to use pneumatic caissons. Men working in caissons shoveled sand from the bottom of the river into pipes. The sand was pumped up to the river's surface. As a caisson sank, other workers built up the caisson's sides so that the top remained above the water.

Once a caisson reached the riverbed, it was filled with concrete. It became the foundation for one of the piers that would eventually support the bridge. Eads insisted on

Pneumatic caissons are watertight containers into which compressed air is pumped to create a dry work environment underwater.

sinking the piers to bedrock. His knowledge of the river convinced him that setting the foundations on anything less than solid rock was too risky.

Seven years after construction began, the Eads Bridge was opened to traffic in the spring of 1874. Fifteen locomotives traveled across it to prove its solid construction. It became the first bridge to be built south of the Missouri River, over wider sections of the Mississippi River.

Even before the bridge was completed, Eads turned his attention to a new project. As the Mississippi River reached the Gulf of Mexico, it slowed down. The river's slow current dropped sediment, which grew into large sandbars. Large vessels could not safely navigate over those obstacles. Ships were often stranded at the mouth of the Mississippi.

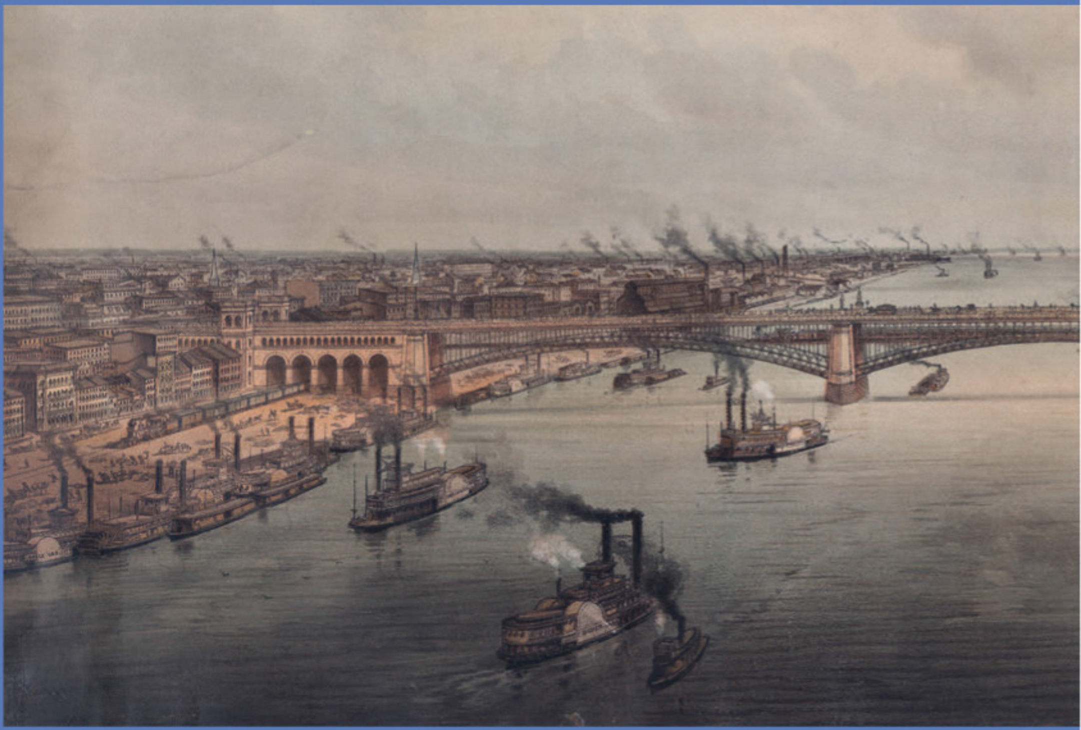
Eads decided to open the channel of the Mississippi below New Orleans so that seagoing vessels could travel upriver to St. Louis year-round.

Eads proposed narrowing the riverbed by building a series of jetties. To form the jetties, Eads built "mattresses" of woven willow trunks and sank them in the river. Concrete blocks were piled on top to secure the mattresses. The river eventually filled the structures with sediment. The jetties narrowed the riverbed, forcing the river to flow faster. The faster current scoured a deeper channel through the mud and sandbars that clogged its mouth.

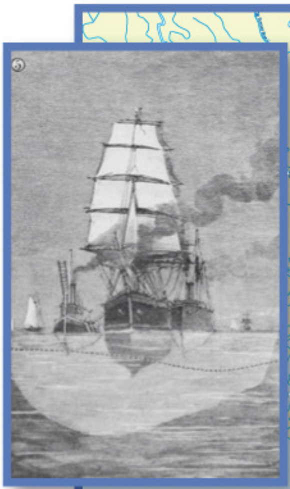
By the spring of 1876, the river's faster current had deepened the original eight-foot channel to 17 feet. Three years later, the channel reached 30 feet—the depth Eads had promised to reach. Ocean-going ships steamed upriver through the

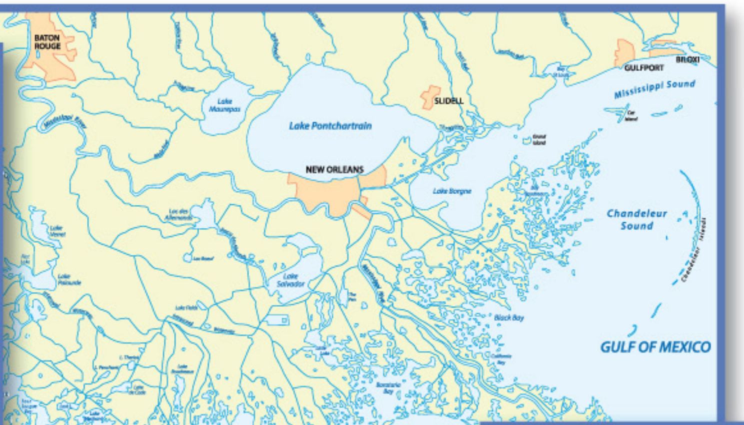
Bedrock is the solid rock that lies under loose material.

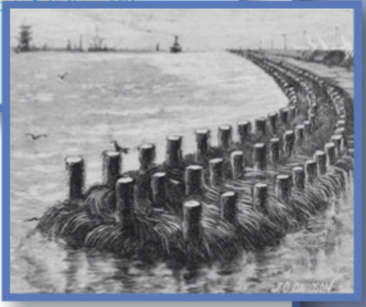
Jetties are structures that project from land out into water.



A view of the completed Eads Bridge, which became known as the St. Louis Bridge. It remains standing today.




BATON ROUGE
Lake Maurepas
Lake Pontchartrain
NEW ORLEANS
SLIDELL
GULFPORT
BILOXI
Mississippi Sound
Lake Borgne
Chandeleur Sound
Chandeleur Islands
Lake Salvador
Black Bay
Barataria Bay
Terrebonne Bay
Timbalier Bay
Caillou Bay
Isle Dernière
GULF OF MEXICO
GULF OF MEXICO

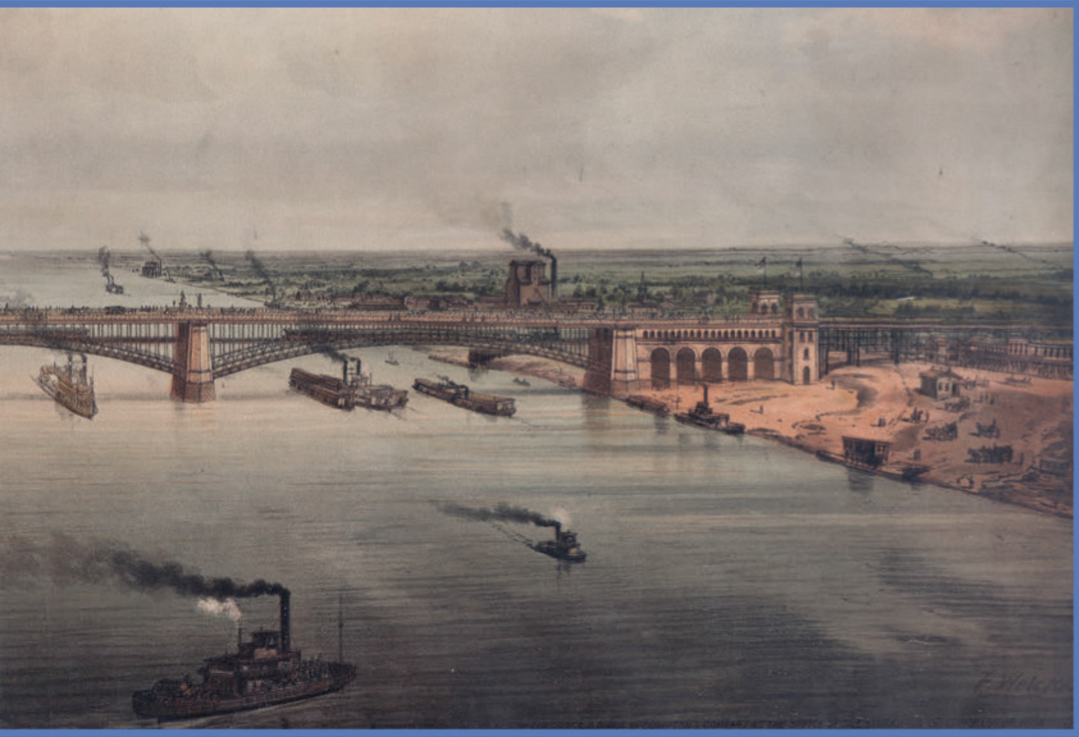


Sediment tends to build up in the Mississippi River Delta, but Eads's use of jetties scoured a deeper channel through the delta's South Pass.

South Pass. New Orleans quickly became the second busiest port in the United States after New York.

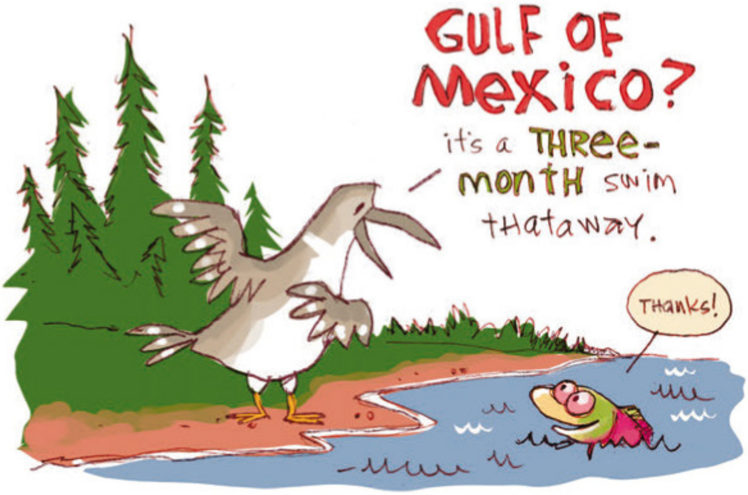
Eads died in 1887. A self-taught engineer, his observations and experience gave him a remarkable confidence. For his work, he became the first engineer to be elected to the Hall of Fame of Great Americans in New York City. The Eads Bridge today is a National Historic Landmark and a National Historic Civil Engineering Landmark. ☸

Based on an article written by Kathleen M. Hays.

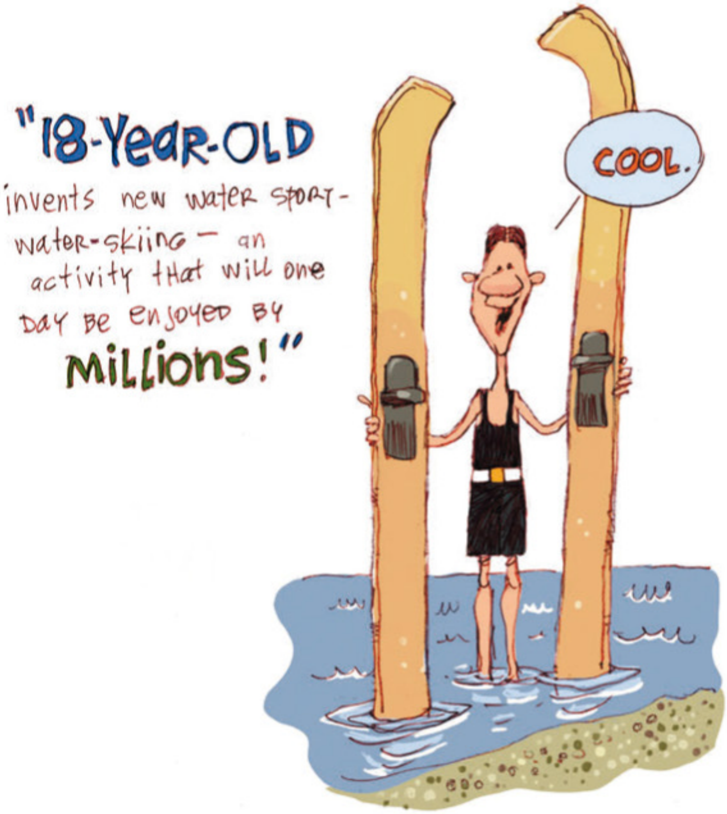


DID YOU KNOW?

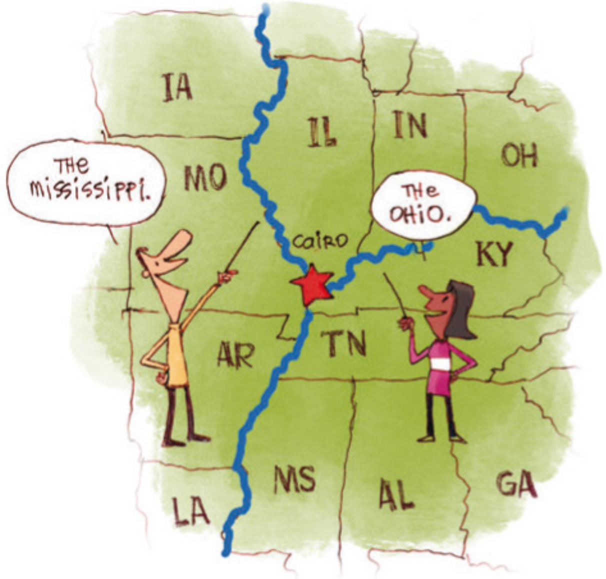
illustrated by Chris Ware


GULF OF Mexico?
it's a THREE-month swim thataway.
Thanks!

The Mississippi River is a major freshwater source. Millions of people rely on treated water from the river for their drinking water. It takes three months for a drop of water at Lake Itasca to reach the Gulf of Mexico.


"18-Year-OLD invents new water sport-water-skiing – an activity that will one day be enjoyed by Millions!"
COOL.

In 1922, Ralph Samuelson introduced the world to water-skiing when he became the first person to attempt the activity on Lake Pepin. Located in Minnesota, Lake Pepin is the largest lake on the Mississippi River.


IA
IL
IN
OH
The mississippi.
MO
The Ohio.
Cairo
KY
AR
TN
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AL
GA
LA

Cairo, Illinois—which is the point where the Ohio River enters the Mississippi River—marks the division of the river into the Upper and Lower Mississippi.

Martin Strel from Slovenia has become famous for completing endurance swims across lakes and down rivers. In 2002, he swam the length of the Mississippi River. It took him 68 days.

This is Gonna take a while!
Mighty Mississippi
Good luck.

WHOA!
WOW!
COOL!
LOOKiT That!
ARF*
* SQUIRREL!
?
Great River Road

The Great River Road follows the Mississippi's course through 10 states. It covers 3,000 miles of roadway, offering travelers a scenic byway from which to explore the river's past and present.

A Famous Mud Pie

by Elizabeth Howard

There are many versions of Mississippi mud pie. Some recipes call for creating a pie with five different layers, which might include layers of brownie, custard, pudding, or meringue. This recipe provides steps to make an easy single-layer pie topped with ice cream or whipped cream. Mississippi mud pies look like they are made of mud that has dried in the sun—much like the mud that can be found on the banks of the Mississippi River. But this rich dessert is edible and delicious. It's definitely a chocolate lover's treat!

You Need

pie crust (either ready-to-use dough or a frozen pie shell)
4 tbsp. butter
4 squares baking chocolate
3 eggs
4 tbsp. dark corn syrup
1 1⁄2 cups sugar
1⁄4 tsp. salt
1 tsp. vanilla extract
vanilla ice cream or whipped cream
cocoa powder
pie plate, small saucepan, stirring spoons, small bowl, whisk, measuring cups and spoons

Directions

1. Preheat the oven to 350° Fahrenheit.
2. Line the pie plate with the dough or use the frozen dough in its own pan.
3. Over low heat, melt the butter and chocolate together in the small saucepan, stirring constantly and making sure it doesn't burn.
4. Lightly whisk the eggs in the small bowl. Stir in the corn syrup, sugar, salt, and vanilla extract. Pour the mixture into the saucepan and mix well with the butter and chocolate. Pour the filling into the pie crust.
5. Bake in the middle of the oven for 35 to 40 minutes or until the filling is set. It should be firm on the top but soft inside.
6. Allow the pie to cool. Cut into slices. Add a scoop of vanilla ice cream or whipped cream and dust with cocoa powder. Enjoy!

Controllin

Seasonal flooding is a natural event for a river. When a river floods, it spills beyond its banks into nearby low-lying areas. When the flooding ends and the river recedes back to its channel, it leaves behind silt on the floodplain. Silt is a fine dirt that holds water. The cycle of flooding, depositing silt, and receding waters makes the soil around rivers particularly good for growing things.

But as people began living permanently in the low-lying plains around the Mississippi, flooding on the river became destructive. When the Mississippi floods today, millions of people are affected. And because the river's drainage system covers more than 40 percent of the United States, wet weather in one section of the country can cause serious floods many miles away.

For example, in December 1926, snowstorms blanketed Montana, South Dakota, and Minnesota. Then in March 1927, blizzards buried Wyoming, Colorado, and Nebraska and parts of Texas, Oklahoma, and Missouri. Farther south, it rained. That spring, melting snow fed into nearby rivers, which overflowed their banks. Most of that water eventually reached the Mississippi.

By the time the Mississippi River rolled through Arkansas, Mississippi, and Louisiana that year, it was so swollen that the levees crumbled under the immense weight of the water. The river spilled into the farmlands and towns of the Mississippi River Delta. It filled 27,000 square miles, the size of four New England states. More than 600,000 people lost their homes. An estimated 500 people lost their lives. It was the biggest flood on record to hit the Lower Mississippi.

Another major flood occurred in the spring and summer of 1993. Record rainfalls pounded the Midwest for months. The ground

became so full of water that it could not absorb any more rain. Meanwhile the Mississippi River rose higher and higher. The swollen river spilled over its banks and poured onto the surrounding countryside.

Those floodwaters covered 15,000 square miles in nine states. They took 47 lives and washed away 74,000 homes. They soaked 10 million acres of farmland and closed 1,000 miles of roads. They toppled levees and broke through walls of sandbags. They swallowed up towns and forced thousands of families to flee from their homes. Hundreds of pets were separated from their owners. One animal shelter rescued 600 dogs and cats.

For thousands of years, the Mississippi River had followed its own course. As Americans spread westward, people settled permanently near it. Towns and cities were built along it. To protect their homes and businesses, people attempted to control the river. None of those efforts—raising it, lowering it, redirecting it, blocking it—have been able to completely tame it.

The federal government took over flood control in 1879. It decided that levees were the best way to prevent

TOP: An aerial view captures the flooded Mississippi River in 1927. ABOVE: Many families lost their homes and were settled into temporary camps.

g the River

by Elizabeth Armstrong Hall

TOP: Some levees run for miles along the Mississippi River in Baton Rouge, Louisiana. INSET: This levee was reinforced with sandbags to protect against flooding in the 1930s.

flooding from the Mississippi. Yet, big floods occurred in 1882, 1912, 1913, and 1922. After the biggest and strongest levees collapsed during the flood of 1927, the government decided to reconsider its "levees-only" policy.

The government experimented with other methods of flood control. Cutoffs shortened the river at curves and made it run faster and carve out a deeper channel. Reservoirs held excess water. Man-made outlets provided an escape for overflow water. Dams backed up water to create lakes.

In the 1930s, the federal government also built a series of 29 locks and dams between Minneapolis and St. Louis. This river "staircase" changed the Upper Mississippi into a nine-foot-deep channel. Along the Lower Mississippi, a combination of dredging, dikes, levees, jetties, and revetments were used. Except for winter months, when parts of the Upper Mississippi freeze, the river became navigable year-round.

Most of the Mississippi and its surrounding floodplain have been dramatically changed to accommodate people and industries. Huge natural areas have been transformed. Those changes have come at a cost. Fish, birds, reptiles, and mammals have lost habitat. People who appreciate the river's wild qualities have grown concerned about the effects changes have on the surrounding environment.

People have tried to encourage a "greener" approach to flooding. Fewer bayous are being paved. Fewer curves in the river are being straightened out. More people are defending the preservation of coastal wetlands and floodplains. They advocate for those areas to be less developed for homes and businesses and used more as public parks. People seem ready to admit that nature may, indeed, know best. The desire to control the river is giving way to a desire to protect it. ☸

Riverfronts are being converted into uses as parks.

Dredging is the removal of sediment that has filled in at the bottom of a body of water.

Revetments are protective structures placed on riverbanks to help prevent erosion.

STEPPING UP

AN INTERVIEW WITH ROJEAN HEYER

by Emily Cambias

Rojean Heyer

Rojean Heyer (RIGHT) has been a lockmaster for the U.S. Army Corps of Engineers for 12 years. She's one of thousands of people who work on the Mississippi River to keep it safe for boats traveling along its length.

Why did you start working on the river?

I grew up around the La Crosse area in Wisconsin. I love anything outdoors. My dad used to take me to Lock and Dam 7. We'd fish off the wall there.

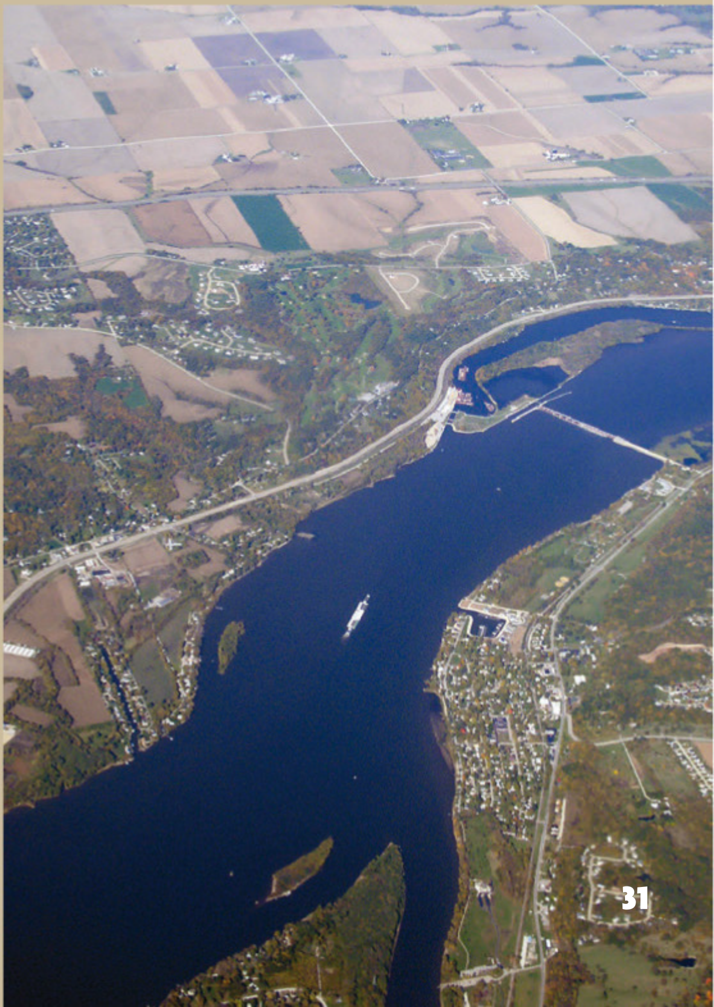
One summer after I graduated from college, the U.S. Army Corps of Engineers was looking for clerks. I worked that summer as a clerk at Lock and Dam 7 in La Crescent, Minnesota. I started working year-round as a clerk in 1982.

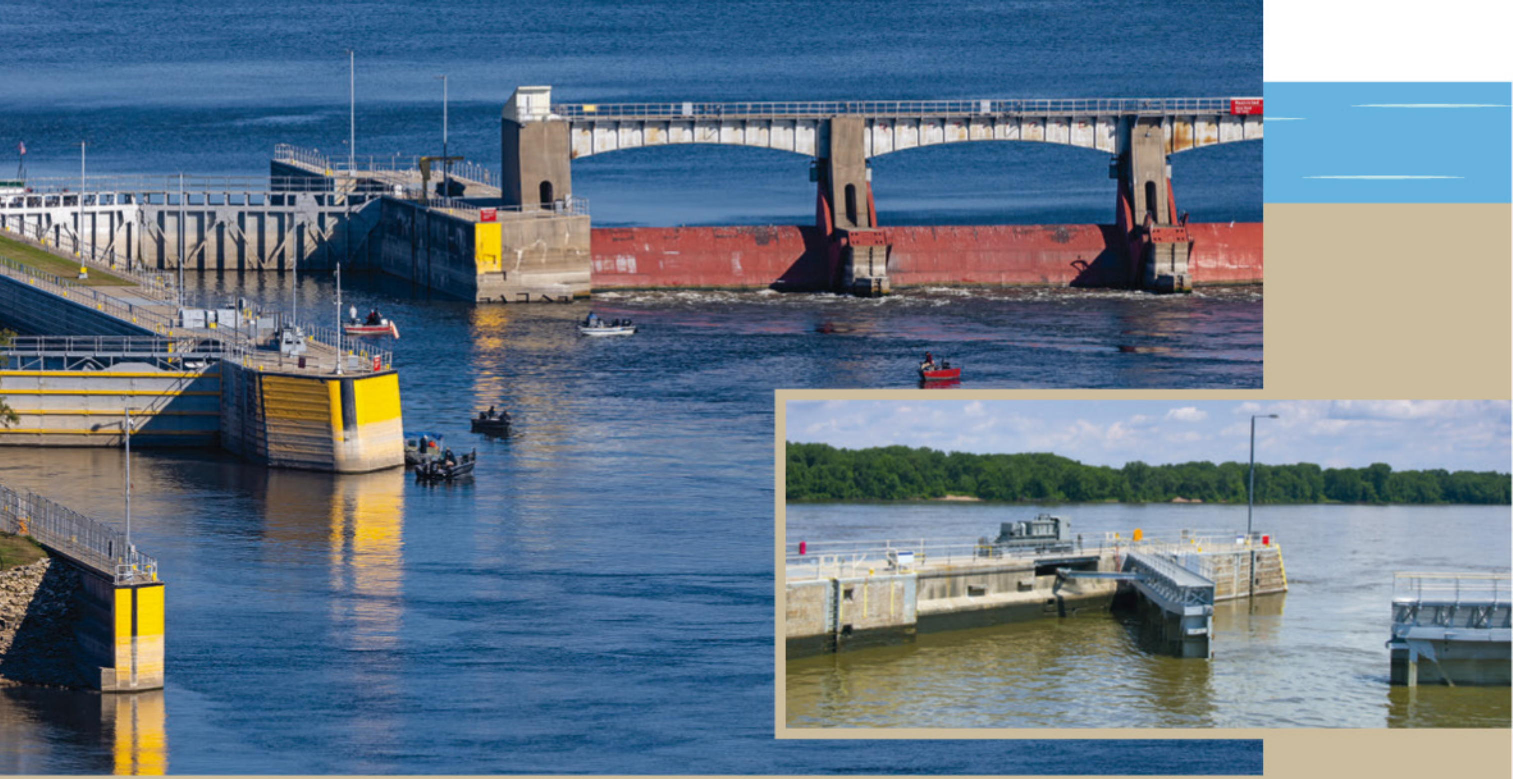
In 1989, the Corps came out with a program to get more women working on the lock. I applied. I had to complete two years working at a lock and dam. If I didn't care for it, I could get my clerk job back.

I absolutely loved it! It was basically outdoor work, putting boats through the lock. I worked a swing shift—one week I worked during the day, the next week I worked 4 p.m. to midnight, and the week after that I worked midnight to dawn. That was hard, but I made it through.

I became an operator on the locks and dams. I did that for a few years. Then I worked as a head operator before I became lockmaster at Lock and Dam 6 in Trempealeau, Wisconsin, in December 2011. I am one of

An aerial view of the Mississippi River shows a vessel approaching a lock and dam.





ABOVE: A close-up view of a lock (left) and dam (right) system, which is designed to regulate the river for navigation. INSET: Lock gates open to release ships making their way on the Mississippi.

three women lockmasters in the St. Paul district.

What does a lockmaster do?

A lockmaster is in charge of a site on river. There are 29 locks and dams between St. Paul and St. Louis. Each one has a lockmaster. Every morning, Water Management in St. Paul sends orders about whether we should open the dam gates or close the dam gates or just stay the same, to keep the water at the right level. My main job is to make sure everything is running smoothly and to ensure we have enough people on site to get boats through the lock safely.

Ice prevents ships from traveling on the Upper Mississippi during the winter, but lock and dam crews remain busy doing maintenance and repair work.

Can you explain the lock and dam system?

The dams are like stairs going up the Mississippi River. Each dam keeps the water in the pool—that's what we call the stretches of water between the dams—at a certain level. We deal with Pool 7 and Pool 6, on either side of the dam. Pool 7 is about 12 miles long. Pool 6 is 14 miles long. Big commercial barges need at least 9 feet of water in the main channel to sail safely. We make sure there are no spots along the river that get too shallow, to keep large vessel from running aground.

It is important to understand that locks and dams have nothing to do with flood control. The dams are strictly for navigational purposes, so the barges can travel safely and are guaranteed a 9-foot channel. We might open our gates when there's a lot of water coming down the river, because we can't hold back any water even if it would prevent land south of us from flooding. That would make the water in the pools too high.

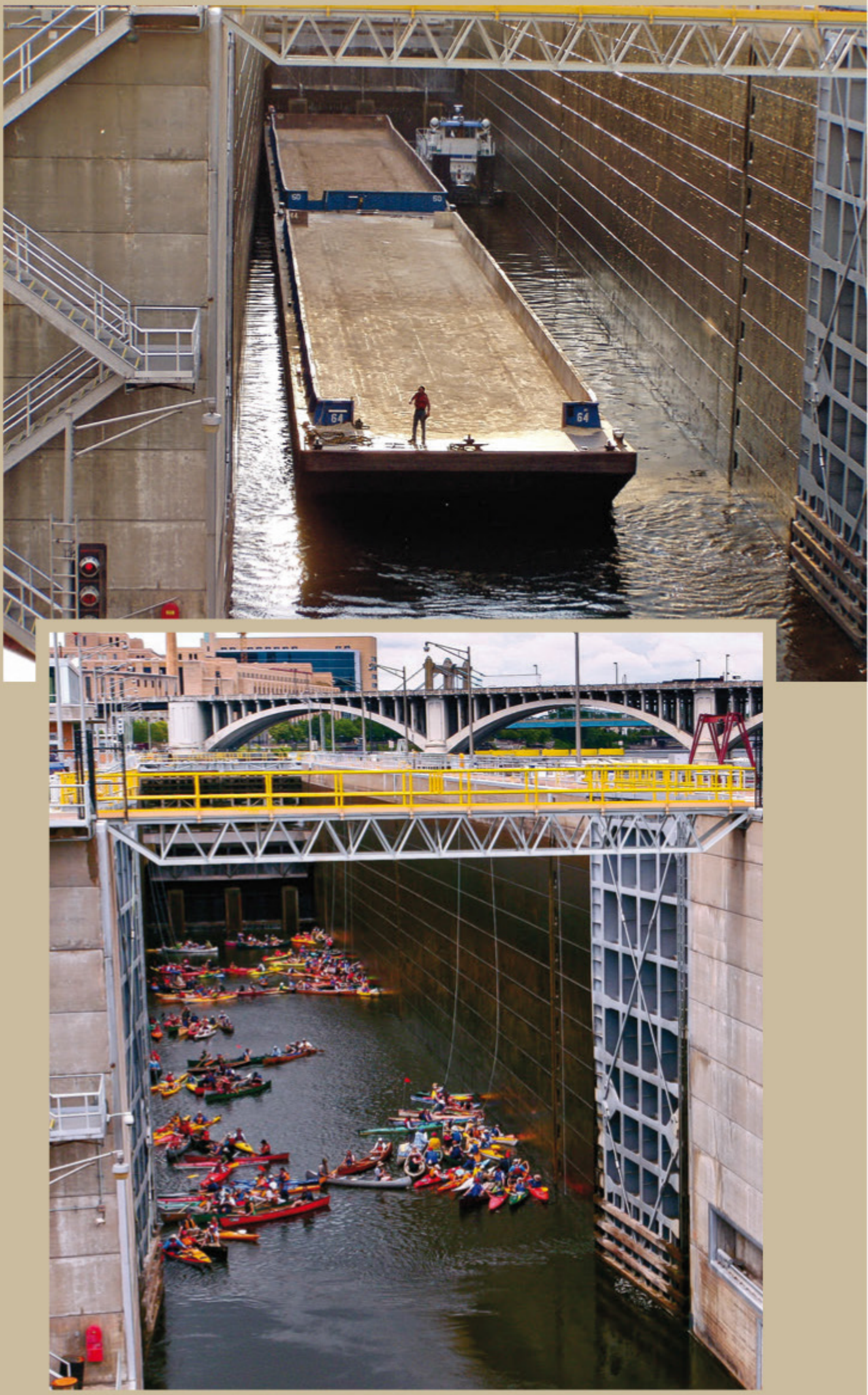
The lock is the portion of the system in which we can control the water level. We have gates on the upper end and on the lower end of the lock. Once a boat is in the lock and the gates are closed, we adjust the level of water in the chamber to go higher or lower, depending on which way—upriver or downriver—the boat is traveling.

Each lock has a different lift. Some have 8-foot lifts. Some have 12-foot lifts. It varies. At Lock 6, boats heading upstream are raised 6.5 feet to go from Pool 7 to Pool 6.

How does a vessel go through the lock?

We stay open 24 hours a day, 7 days a week from mid-March through November. Boats can come through in the middle of the night if they want to. We basically have a traffic light out there—with red, yellow, and green lights. If a ship approaches the lock and doesn't see any traffic lights on, that means we're not locking anything. So, the captain has to signal us, either by marine radio or by phone, to say "I want to lock through."

As soon as we get that message, we put our traffic lights on. If the



The locks and dams on the Mississippi help everything from large barges (TOP) to small recreational kayakers (ABOVE) navigate the river.

ship is below us and we have to lower the chamber to that level so we can open the lower gate, we will give a yellow light, meaning, "We're getting it ready for you!" And then once the chamber's water level is down to the lower pool, we'll swing the gates. When they're fully open, we give a green light, meaning, "It's safe to enter the lock."

If more than one boat is in the chamber, we have lines along the wall for them to hang on to because it gets turbulent when we fill the chamber going upstream. And when the water in the lock reaches the same level as the upper pool, we open the upper gates and blow a horn, meaning, "It's safe for you to leave." And the ship sails on to the next lock!

Turbulent describes something that moves unsteadily or violently.

It sounds like boat captains must know some etiquette.

Yes. A ship can't come in at 100 miles an hour. It's important to keep a slow speed. If a ship comes in too fast, it causes a wave, and that wave gets stuck inside the chamber. Then everybody's bouncing around, out of control. So, we always have somebody out on the wall watching to make sure the process is safe.

Tugboats often help guide large barges as they make their way on the Mississippi River.

Bald eagles can be seen nesting near locks and dams on the Mississippi River in winter.

How many boats do you see every day? Every year?

Here at Lock 6, we see approximately 2,000 commercial vessels and around 2,700 small boats in a year. The barges going north carry fertilizer, cement, all kinds of products. Going south, it's soybeans, corn—agricultural stuff. I've seen barges full of big wind turbine blades and telephone poles sailing up the river. And we see a lot of pleasure craft—people go from St. Paul down to La Crosse in small boats, especially in the summer.

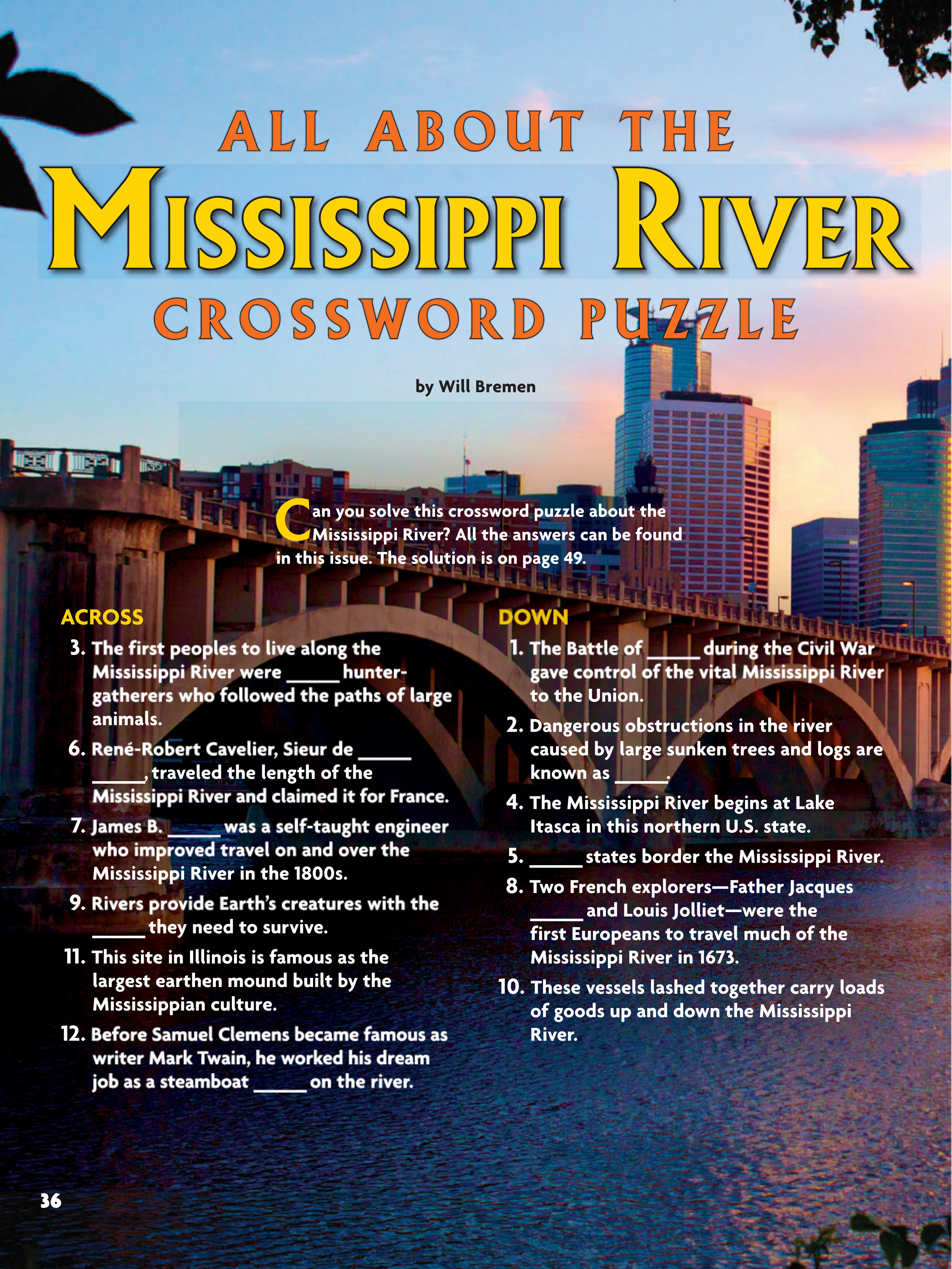
You have one of the best views of the river. What are some of your favorite things to see?

I do have a beautiful view. It's tempting to just sit here and look out the window many days. I really enjoy watching and hearing bald eagles. They'll sit in the trees and then swoop down to catch fish in the open water. We also have beavers, possums, and raccoons. In winter, I've seen deer running across the ice, going from island to island. I see all modes of transportation, too. A semi-truck driving by on the road. An airplane flying overhead. A train going over a bridge. And a barge in the chamber!

And sometimes you see visitors, too!

Yes, give a us call! We offer scheduled tours. To learn more about the U.S. Army Corps of Engineers, St. Paul District, check out our website at www.mvp.usace.army.mil. ☸

Heyer interacts with a young visitor on a tour of Lock and Dam 6.



ALL ABOUT THE MISSISSIPPI RIVER CROSSWORD PUZZLE

by Will Bremen

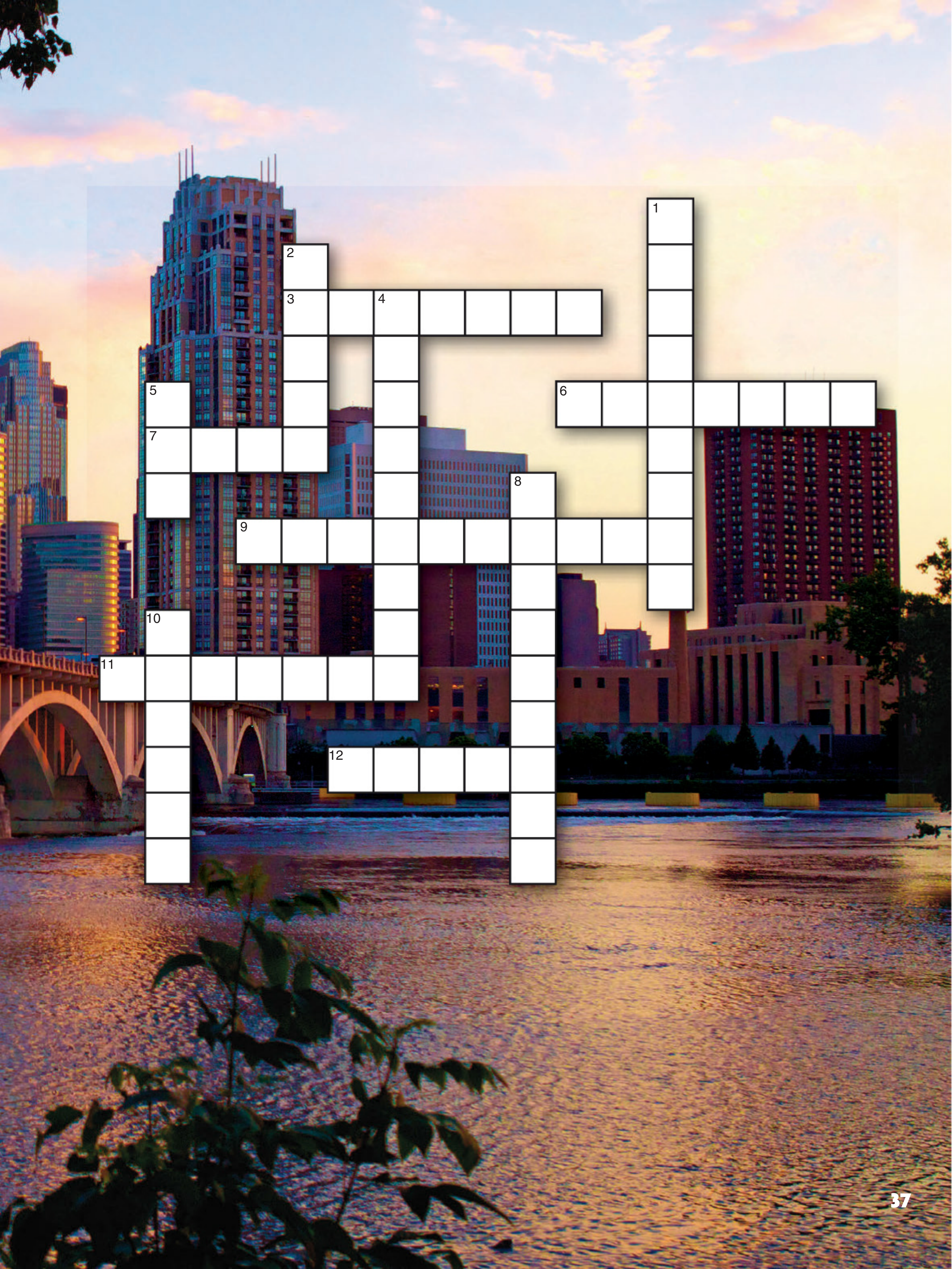
Can you solve this crossword puzzle about the Mississippi River? All the answers can be found in this issue. The solution is on page 49.

ACROSS

3. The first peoples to live along the Mississippi River were _____ hunter-gatherers who followed the paths of large animals.
6. René-Robert Cavelier, Sieur de _____ _____, traveled the length of the Mississippi River and claimed it for France.
7. James B. _____ was a self-taught engineer who improved travel on and over the Mississippi River in the 1800s.
9. Rivers provide Earth's creatures with the _____ they need to survive.
11. This site in Illinois is famous as the largest earthen mound built by the Mississippian culture.
12. Before Samuel Clemens became famous as writer Mark Twain, he worked his dream job as a steamboat _____ on the river.

DOWN

1. The Battle of _____ during the Civil War gave control of the vital Mississippi River to the Union.
2. Dangerous obstructions in the river caused by large sunken trees and logs are known as _____.
4. The Mississippi River begins at Lake Itasca in this northern U.S. state.
5. _____ states border the Mississippi River.
8. Two French explorers—Father Jacques _____ and Louis Jolliet—were the first Europeans to travel much of the Mississippi River in 1673.
10. These vessels lashed together carry loads of goods up and down the Mississippi River.



IN OTHER NEWS

Major Rivers

by Emily Cambias

The Mississippi isn't the only river to have an important role in the nation's history.

WATER RIGHTS

The Colorado River runs from northern Colorado down to the Gulf of California. It's one of the few big rivers that travels through dry, desert terrain. Around 100 C.E., people such as the Puebloans used it to farm and irrigate the land. They built cities and many structures along its canyon walls. A terrible drought in the 1500s, perhaps caused by too much irrigation, caused the cities to collapse. By the time European settlers reached the Colorado, it had recovered from the drought. They damned the river and used it for irrigation, too. The system supported ranches and huge herds of cattle—and eventually, big cities such as Las Vegas. But today, the Colorado is at historic low levels. The issue of water rights is going to shape the Colorado Basin for many years to come.

EXPEDITION TO THE WEST

The Missouri River is the longest river in the United States. It flows from the Rocky Mountains of Montana to merge with the Mississippi River just north of St. Louis, Missouri. Early European settlers heard from Indigenous groups how far west the river flowed. In 1795, the Spanish (who controlled the region) offered a reward to the first person to reach the Pacific via the Missouri. No one succeeded. In 1803. President Thomas Jefferson enlisted Meriwether Lewis and William Clark to map a route to the Pacific from the mouth of the Missouri. The two captains set off with 33 men in three boats in May 1804. Before the Corps of Discovery returned in 1806, they discovered—with the help of several Indigenous groups—that the Missouri ended in the Rockies. But they also reached the Pacific by way of the Columbia River.

SOUTH TOWARD FREEDOM

The Rio Grande flows from Colorado to the Gulf of Mexico. Its serves as a broad border between the United States and Mexico. Mexico abolished slavery in 1837—almost 30 years before the United States did so. After the border was decided in 1848, enslaved people in Texas looked across the river to possible freedom. Some people waded across at shallow points. Other people snuck aboard ferries bound for Mexican ports. Some people reportedly floated across the river on bales of cotton. Once in Mexico, they were free: Mexico did not allow slave owners to claim escaped enslaved people. Thousands of enslaved people made the hard journey across the river. Some of their descendants still live along the river today.

GOING GLOBAL

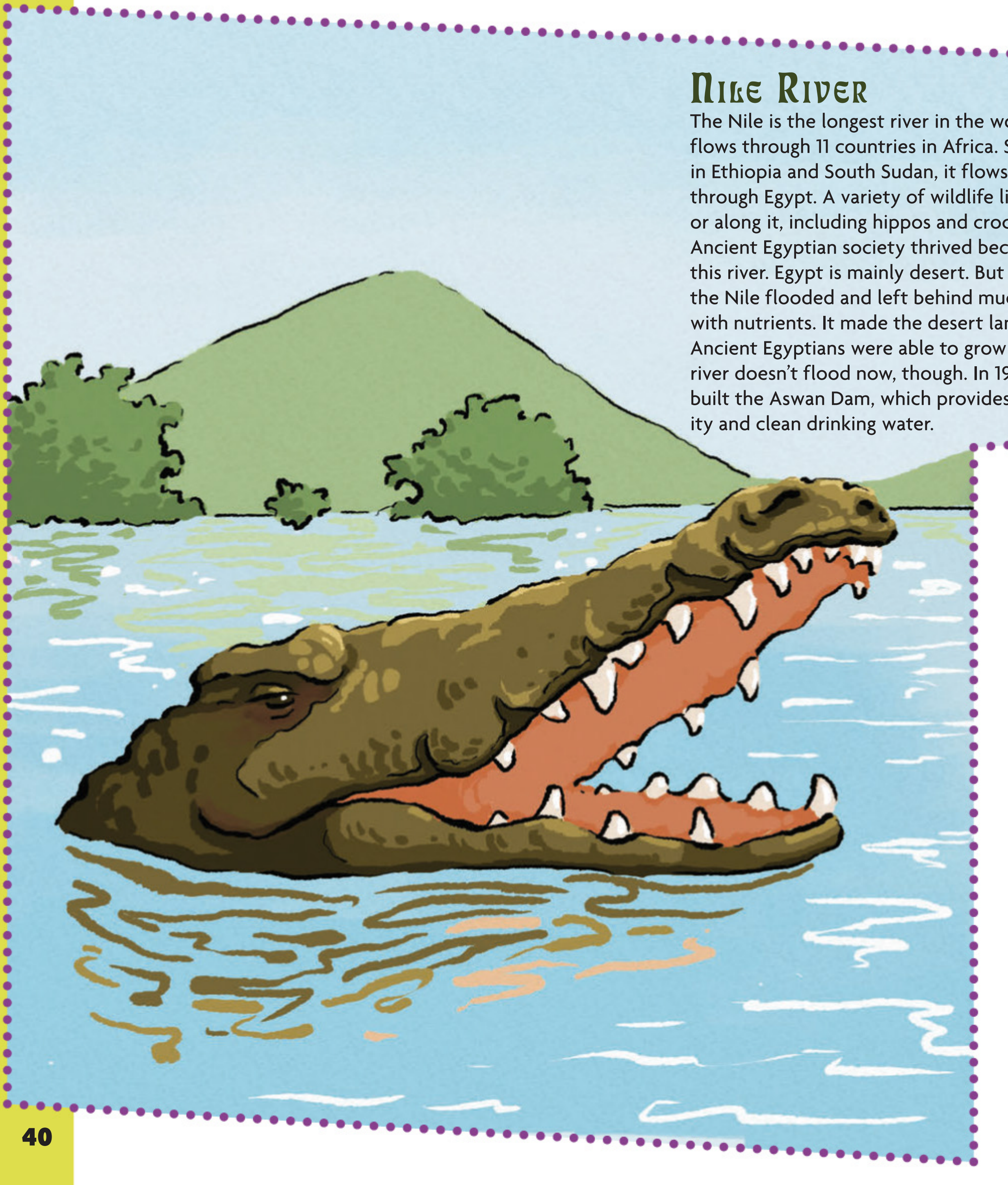
by Bryan Langdo

Mighty Rivers

Rivers play a huge role in both the natural environment and human activity. Here are three important rivers around the world.

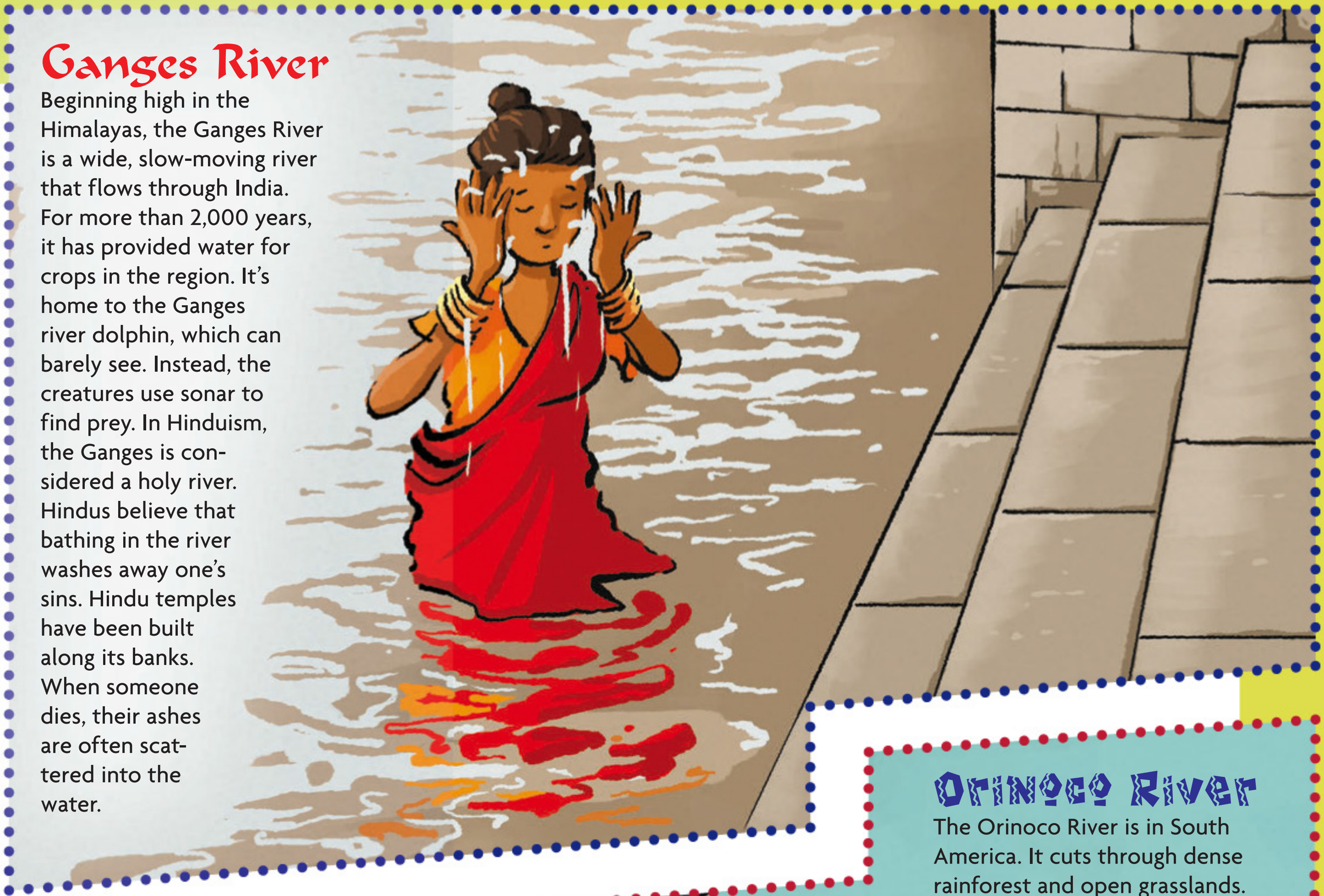
Nile River

The Nile is the longest river in the world. It flows through 11 countries in Africa. Starting in Ethiopia and South Sudan, it flows north, through Egypt. A variety of wildlife lives in or along it, including hippos and crocodiles. Ancient Egyptian society thrived because of this river. Egypt is mainly desert. But each year, the Nile flooded and left behind mud packed with nutrients. It made the desert land fertile. Ancient Egyptians were able to grow crops. The river doesn't flood now, though. In 1970, Egypt built the Aswan Dam, which provides electricity and clean drinking water.



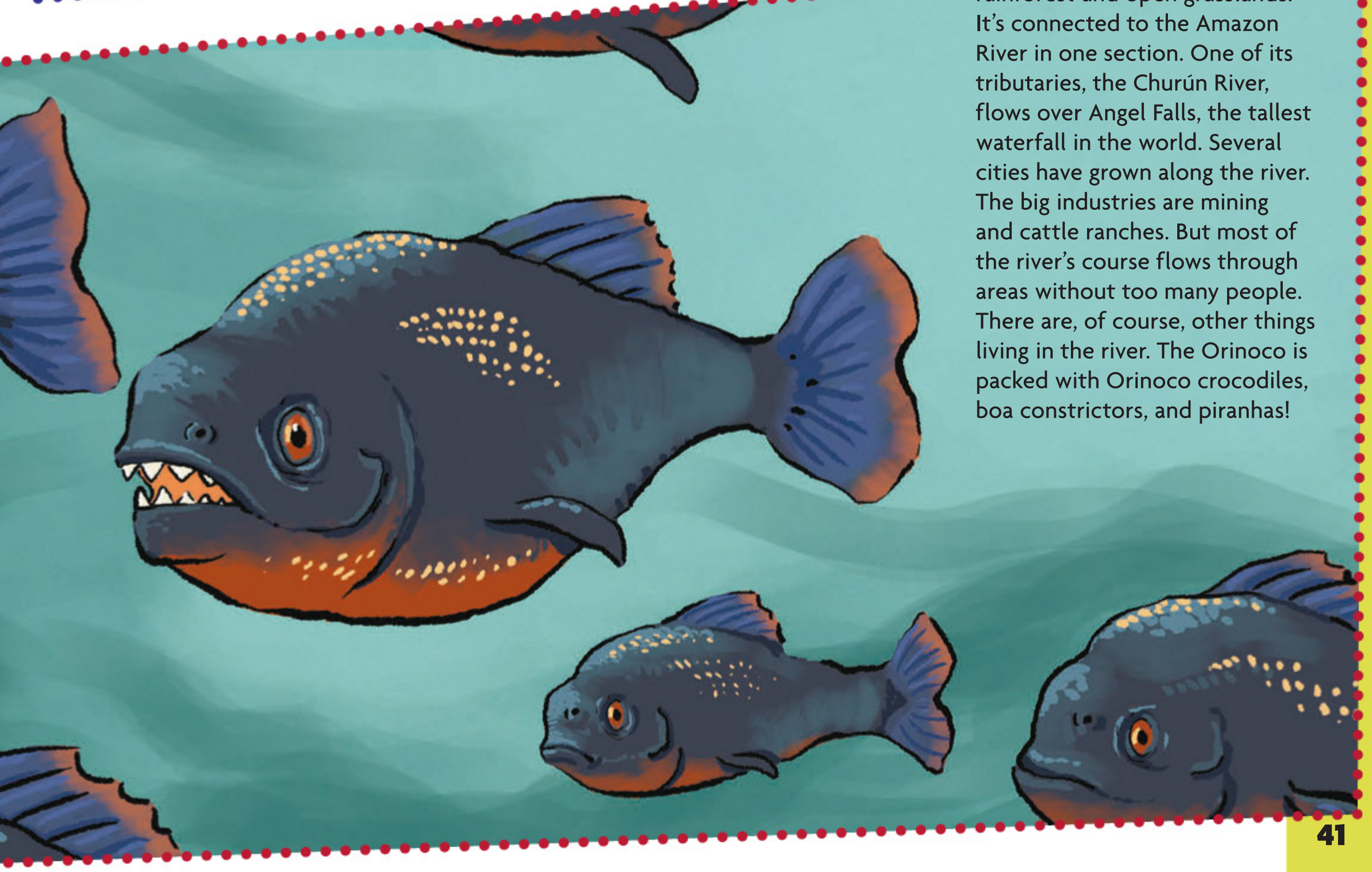
Ganges River

Beginning high in the Himalayas, the Ganges River is a wide, slow-moving river that flows through India. For more than 2,000 years, it has provided water for crops in the region. It's home to the Ganges river dolphin, which can barely see. Instead, the creatures use sonar to find prey. In Hinduism, the Ganges is considered a holy river. Hindus believe that bathing in the river washes away one's sins. Hindu temples have been built along its banks. When someone dies, their ashes are often scattered into the water.



Orinoco River

The Orinoco River is in South America. It cuts through dense rainforest and open grasslands. It's connected to the Amazon River in one section. One of its tributaries, the Churún River, flows over Angel Falls, the tallest waterfall in the world. Several cities have grown along the river. The big industries are mining and cattle ranches. But most of the river's course flows through areas without too many people. There are, of course, other things living in the river. The Orinoco is packed with Orinoco crocodiles, boa constrictors, and piranhas!



SAY WHAT?

exploring the origins of words and sayings

Ten states border the Mississippi River. With the exception of Louisiana, which was named for France's King Louis XIV, the names of those states originated with Indigenous groups that originally lived in those places. In many cases, the Indigenous terms were initially used to name a river that was important to the original inhabitants. Take a look.

Minnesota derives from a Dakota word, *mnisota,* meaning "cloudy water" or "sky-tinted water." *Mni* is the Dakota word for "water." It referred to that state's major river.

Various Indigenous peoples knew of a "big river" or "long river." French Canadian missionaries and explorers who first heard the Indigenous terms for the river—*Misi-ziibi*—referred to it as *Michi Sepe,* or "great river." It led to **Mississippi.**

Wisconsin is believed to derive from an Indigenous word meaning "wild rushing channel." It describes a major river in the state. Europeans heard—and noted—the native word for the river as *Ouisconsin* and *Misconsing.*

Some place names passed through several languages before becoming today's familiar word. **Iowa** derives from an unflattering nickname used by unfriendly Indigenous groups when referring to the Báxoje people. The Dakota called them the *Ayuxba* ("sleepy ones") and the Illinois called them *Ayuway.* The French called them the *Ioway.*

The Illinois Confederation consisted of a dozen Indigenous groups. The Illinois called themselves the *Illiniwek*, meaning “the best people.” The nearby Ojibwe people referred to the Illiniwek as *Ilinwe*. With the addition of the French suffix “-ois,” the word evolved to **Illinois.**

There are several explanations for the Indigenous origins of **Kentucky.** *Kentake* means “meadow land.” *Ken-tah-the* is believed to mean “land of tomorrow.” A third meaning, from the Shawnee who traveled on the local river, was “at the head of a river.”

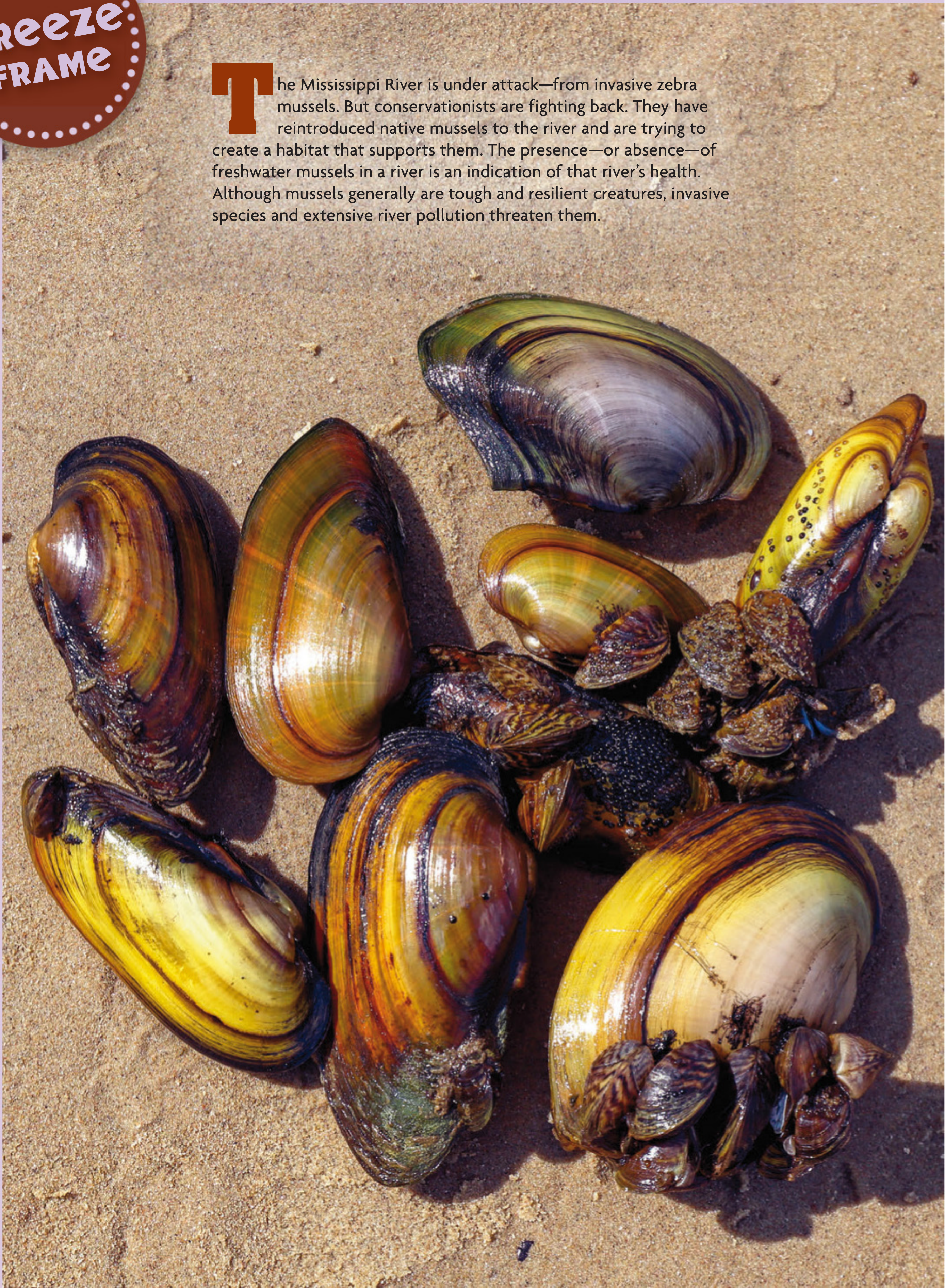
Tennessee derives from a Cherokee site referred to as *Tanase*. It was located on a river of the same name. A Spanish explorer also noted *Tanasqui* as a village in the region.

Missouri comes directly from a group of Indigenous people—the Missouri—who lived near that state’s large river. It is believed that the term referred to a “town of large canoes.”

The Quapaw lived to the south of the Illinois Confederation. The Illinois called the Quapaw the *Akansa*, meaning the “people of the south wind.” The first French explorers adapted the Illinois word to *Arcansas*. **Arkansas** today refers to both the state and the river that once was home to the Quapaw.

Freeze Frame

The Mississippi River is under attack—from invasive zebra mussels. But conservationists are fighting back. They have reintroduced native mussels to the river and are trying to create a habitat that supports them. The presence—or absence—of freshwater mussels in a river is an indication of that river's health. Although mussels generally are tough and resilient creatures, invasive species and extensive river pollution threaten them.



YOUR LETTERS

Dear *COBBLESTONE*,

I am a (fairly) avid reader of your magazine, and I would like to begin by saying that I am impressed with your inclusive history. I have especially enjoyed your issue on Ida B. Wells-Barnett. Would you consider either adding a character or revising your existing ones to be more inclusive and historically reflective? Ebenezer is a white, colonial-era man, and while white, colonial-era men do demonstrate many people's idea of what the human manifestation of American history would be, they do not show the other side of our country's history—the history of Asian Americans being denied passage into the United States, the history of women silently facilitating the Revolutionary War from behind the scenes, the history of queer authors' influence on modern American culture. Please consider adding a new, nonwhite male character or revising the existing ones to make your magazine more inclusive and reflective of what American history truly is. Thank you for taking the time to read my letter.

Sincerely,

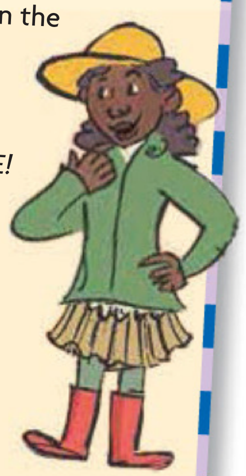
Ivy Aberdeen, age 12

Dear Ivy,

Thanks for your letter. A few years ago, we introduced Molly, a person of color. Your letter reminded us that she has an important viewpoint and needs to play a bigger role on the pages. Thank you for pointing out this need for diversity and for reading *COBBLESTONE!*

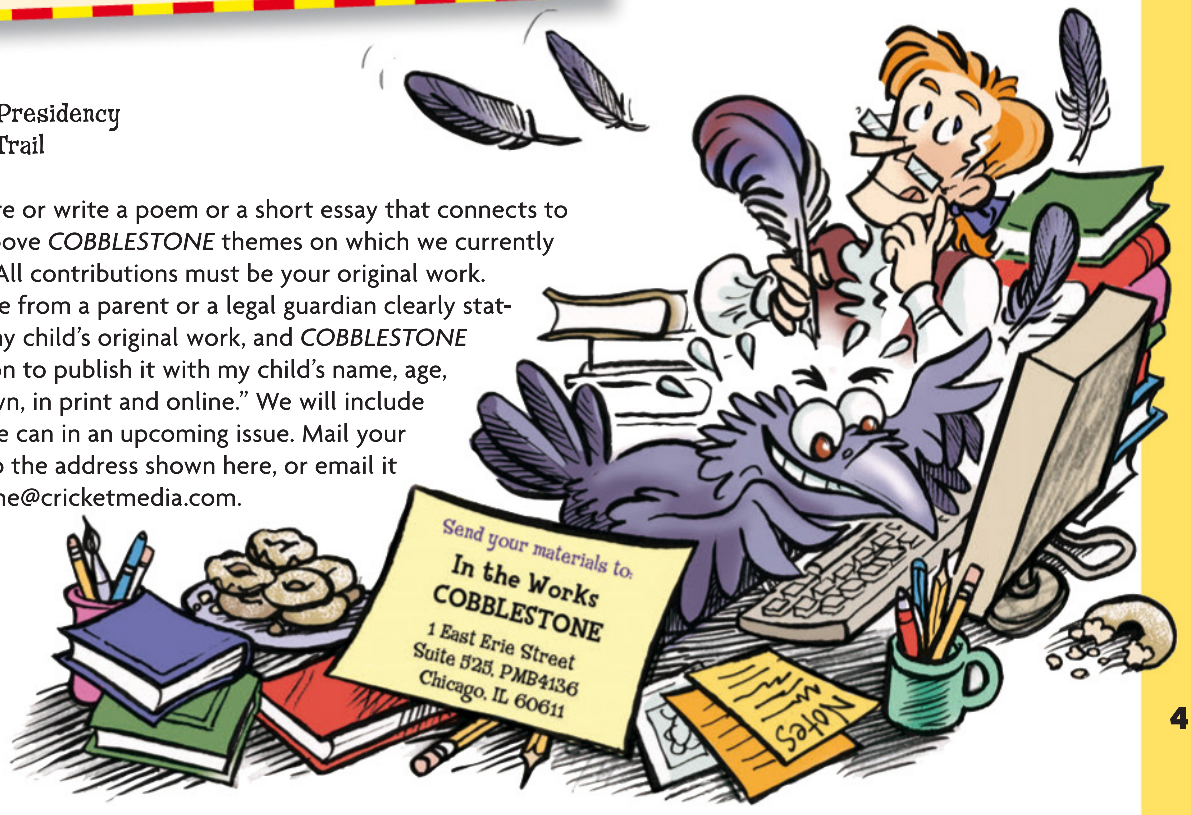
Sincerely,

The Editorial Team



Hollywood
The Monroe Presidency
The Oregon Trail

Draw a picture or write a poem or a short essay that connects to one of the above *COBBLESTONE* themes on which we currently are working. All contributions must be your original work. Include a note from a parent or a legal guardian clearly stating: "This is my child's original work, and *COBBLESTONE* has permission to publish it with my child's name, age, and hometown, in print and online." We will include as many as we can in an upcoming issue. Mail your submission to the address shown here, or email it to cobblestone@cricketmedia.com.



Send your materials to:
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SPOTLIGHT ON...

by Ebenezer

NATIONAL MISSISSIPPI RIVER MUSEUM & AQUARIUM
SEUM STORE

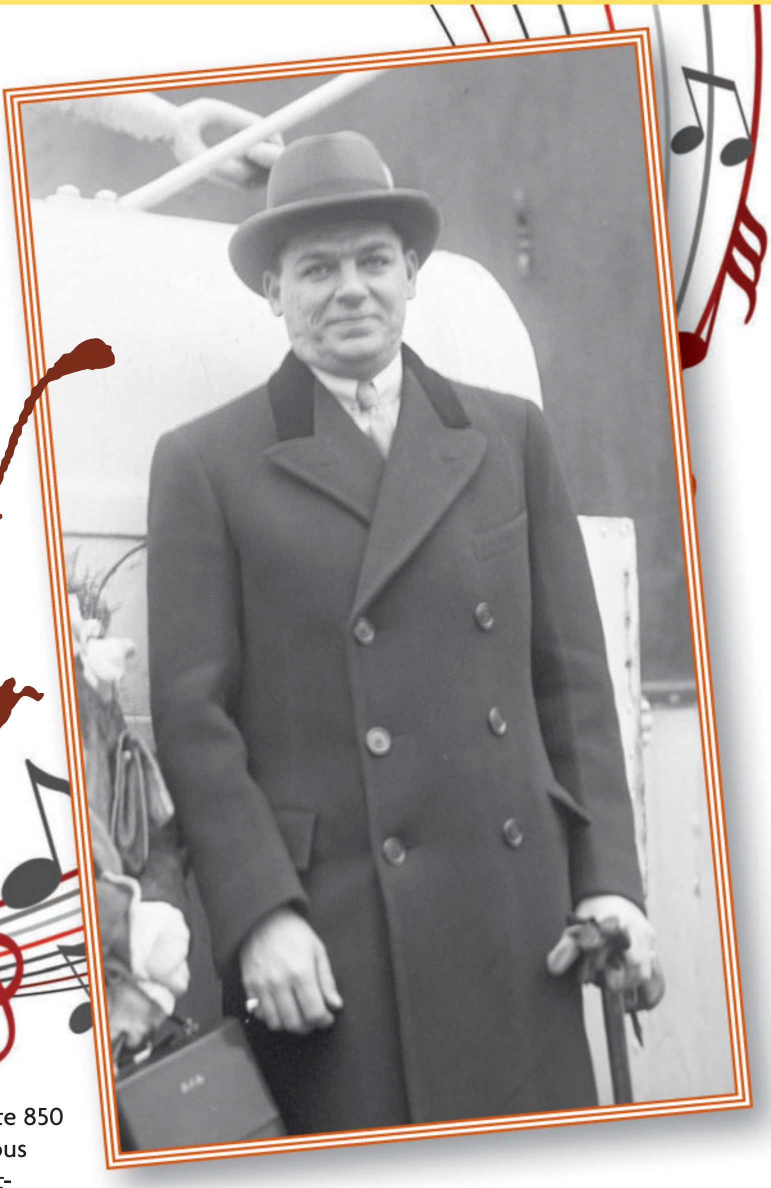
Save Our Rivers!

A decade after opening its doors, the National Mississippi River Museum & Aquarium has doubled in size and has become a renowned institution. Affiliated with the Smithsonian Institution, the museum's mission is to help visitors see the importance of protecting rivers and the creatures that live in and around them. The site introduces visitors of all ages to science programs and educates about endangered species. The museum has many hands-on exhibits, including a chance to pet sting rays. Other live animals include turtles, various fish, and river otters. For people who are curious but cannot get to Dubuque, Iowa, the museum also offers a webcam. To learn more, check out its website at **www.rivermuseum.com**.

DR. D'S MYSTERY HERO

by Dennis Denenberg

Musical Partner



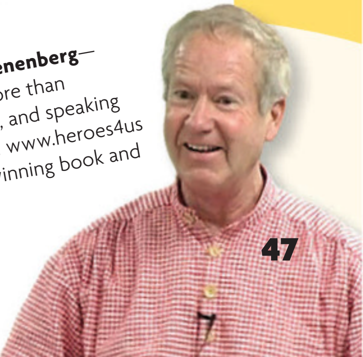
This month's mystery hero co-wrote 850 songs! Many of his lyrics are famous around the world. One of his best-known songs is about the Mississippi River. It gave the river its familiar nickname.

Our hero was born in New York City in 1895 into a musical theater family. His grandfather was involved with operas. His father owned a famous vaudeville theater where musical and comedy acts played. His uncle was a producer. All those connections gave our young hero opportunities to see many shows.

Our hero took piano lessons beginning at the age of nine. He also performed in a school Christmas pageant. But our hero's father did not want his son to go into the family business. When it came time for our hero to go to college, he was directed to study law. Only after his father died, did "Ockie"—our hero's nickname—begin to focus on writing songs for the theater.

Our hero wrote the lyrics to "Ol' Man River" in 1927. The song compared the hard life of a Black stevedore (dock worker) to the Mississippi River's unending, carefree flow. It was written for the musical play *Show Boat.* When the play was made into a movie in 1936, African American singer Paul Robeson sang a famous version of our hero's song.

After you discover our hero's identity, ask any older person you know if they are familiar with his work. They likely will be able to sing one of his songs for you! Answer on page 49.



"Dr. D"—also known as **Dr. Dennis Denenberg**—loves history and real heroes. For more than 20 years, he's been writing, teaching, and speaking about heroes all over America. Visit www.heroes4us.com to learn all about his award-winning book and his Hero-Virtue trading cards.

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JUST FOR FUN

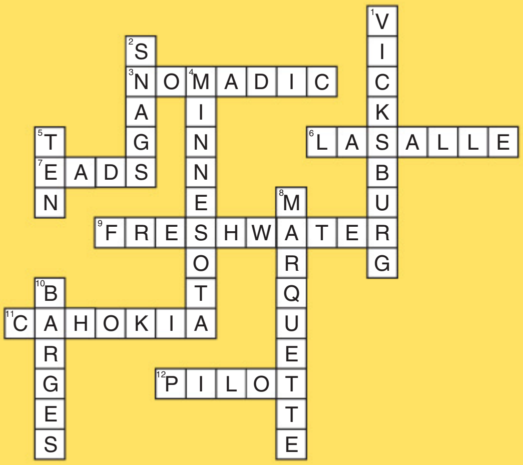
Hey, kids!

We're looking for a funny caption for this photo. Send your idea, name, and address to: Just for Fun, *COBBLESTONE,* 1 East Erie Street, Suite 525, PMB4136, Chicago, IL 60611, or email it to cobblestone@cricketmedia.com. Include a note from a parent or a legal guardian clearly stating: "This is my child's original work, and *COBBLESTONE* has permission to publish it with my child's name, age, and hometown, in print and online."

January Winners!

All hooves on deck!
Jonah Williams, age 7
Carrollton, Georgia
I am the G.O.A.T!
Suzi Neiss, age 9
St. Louis, Missouri
Who ordered the goat milk?
Brooks Henry, age 8
Wheaton, Illinois
All right troops, here's the battle plan!
Vinny Capelli, age 10
Ravensdale, Washington

Answers to All About the Mississippi River Crossword Puzzle from page 36:



Answer to Dr. D's Mystery Hero from page 47: Oscar Hammerstein II

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CREATURE FEATURE

Eat, Swim, Play. . . Repeat

The Mississippi River is home to many creatures. More than 100 species of fish swim in its waters. Thousands of migrating birds follow the river's route each spring and fall. Mammals such as deer, beavers, foxes, raccoons, and coyotes find shelter in the river's trees and marshy areas. Among the more common smaller mammals is the North American river otter. (Their average weight ranges from 10 to 30 pounds, and their average length—including tail—is 3 to 5 feet.) These playful creatures are comfortable on land and in the water, but they stick close to fresh water. With their streamlined bodies, webbed paws, and long tapered tails, they are strong swimmers. Their thick fur repels water. The river provides all kinds of things for otters to eat, including fish, birds, insects, and mollusks. The presence of North American river otters along the Mississippi River is used as indication of the river's good health: River otters abandon places where development by people or pollution has harmed the environment.